

المراجعة رقم 1



First term Questions Bank

المتميز

Question 01

Choose the correct answer

- 1 The arithmetic mean of the values 6,4,7,3 is
 (a) 4 (b) 20 (c) 5 (d) 5.5
- 2 The circular sector that represents the area of the circle °
 (a) 360 (b) 180 (c) 90 (d) 40
- 3 If $X \notin \{7,2,5\}$, which of the following can be X ?
 (a) 2 (b) 7 (c) 1 (d) 5
- 4 If $\{X,3\} = \{5,Y\}$, what is the value $X+Y$?
 (a) 15 (b) 8 (c) 3 (d) 5
- 5 If $X \in \{3,12,7\}$, then X cannot be equal to
 (a) 3 (b) 7 (c) 15 (d) 12
- 6 The result of subtracting $7y-6$ from $3y+7$ is
 (a) $10y + 13$ (b) $-4y + 13$ (c) $4y + 13$ (d) $2y + 5$
- 7 If the median is the seventh, then the number of values is
 (a) 7 (b) 13 (c) 14 (d) 15
- 9 If $A \subset B$, then $A \cup B =$
 (a) B (b) A (c) \emptyset (d) other
- 10 A man distributed 15,000 pounds to two people in a ratio of 2:3 what is the share of each of them ?
 (a) 5000 , 10000 (b) 6000 , 9000 (c) 7000 , 8000 (d) 12000 , 3000
- 11 $(-8) + (-3) =$
 (a) 11 (b) 3 (c) -11 (d) 8
- 12 The projection of the point $(-2,0)$ on the X-axis is
 (a) $(-2,0)$ (b) $(0,0)$ (c) $(0,2)$ (d) $(2,0)$
- 13 Two integers whose product is -4 and whose sum is 0, what are the two numbers ?
 (a) 1, -4 (b) -1, 4 (c) -2, 2 (d) 0, 4



- 14 If $A = \{2, 4, 1\}$, $B = \{3, 1, 4\}$ then $A \cap B = \dots$
- a {1,4} b {1} c {4} d \emptyset
- 15 If the distance between Cairo and Damietta is 400 Km in reality and the distance between them on the map is 8 Cm, Find the scale of this map ?
- a 1 : 50,000 b 1 : 500,000 c 1 : 5,000,000 d 1 : 50,000,000
- 16 The additive inverse of the expression $7a - 2b + 9$
- a $-7a - 2b - 9$ b $-7a + 2b - 9$
c $7a - 2b - 9$ d $-7a + 2b + 9$
- 17 The number of subsets of a set containing 4 elements is equal to set.
- a 4 b 8 c 16 d 32
- 18 Number of triangles in a pentagon =
- a 7 b 5 c 4 d 3
- 19 If point (2,5) is the midpoint of AB where A is (4,1) then B =
- a (0,9) b (3,3) c (8,10) d (1,4)
- 20 If the map scale is 1 : 1,000,000 and the real distance between two points is 45 Km , what is the distance between the two points in Cm ?
- a 450 b 4.5 c 45 d 4500
- 21 Which of the following are like algebraic terms ?
- a X,2 b x^2, y^2 c $3a, 8a$ d 7, 7X
- 22 4 {1,2,5}
- a \in b \notin c \subset d $\not\subset$
- 23 If the arithmetic mean of the values 3,4,5,6,x is 4 then x =
- a 2 b 3 c 4 d 5
- 24 is dividing two or more things into known proportions.
- a Drawing scale b Proportion c Ratio d Mean
- 25 Any triangle has at least two angles.
- a acute b right c obtuse d other
- 26 The midpoint of (3,1), (3,-1) is
- a (0,6) b (6,0) c (3,0) d (0,3)



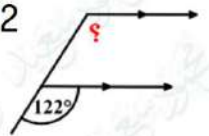
- 27 How many subsets of the set $B = \{3, 7\}$?
 (a) 2 (b) 4 (c) 6 (d) 8
- 28 $10 + (-8) = \dots\dots\dots$
 (a) -2 (b) 2 (c) 18 (d) 8
- 29 If the price of a dress is 810 pounds after the discount, and if the discount rate is 10% of the original price, calculate the price of the dress before the discount?
 (a) 891 (b) 900 (c) 960 (d) 860
- 30 If $2x=2$, then $3x-1 = \dots\dots\dots$
 (a) 3 (b) 1 (c) 4 (d) 2
- 31 Vertically opposite angles are complementary, each of which has a measure of $\dots\dots\dots^\circ$
 (a) 180 (b) 45 (c) 90 (d) 30
- 32 If the arithmetic mean of the numbers $x+1, 8, 4+2x, x-5, x+2$ is 7, then $x=\dots\dots\dots$
 (a) 6 (b) 5 (c) 4 (d) 3
- 33 Which of the following equation has no solution in Z ?
 (a) $6x=24$ (b) $6x=18$ (c) $6x=15$ (d) $6x=12$
- 34 If the price of a commodity decreases from 1500 pounds to 1200 pounds , what is the rate of reduction ?
 (a) 30 % (b) 20 % (c) 15 % (d) 3 %
- 35 The algebraic expression that expresses " twice the number a plus 7 " is
 (a) $2b + 7$ (b) $2a - 7$ (c) $2a + 7$ (d) $7a$
- 36 Number of axes of symmetry of an isosceles trapezium =
 (a) 3 (b) 2 (c) 1 (d) 0
- 37 If ABCD is a parallelogram and $M(\angle C) + M(\angle A) = 140^\circ$, then the $M(\angle B)$ is
 (a) 220 (b) 40 (c) 110 (d) 70
- 38 The sum of the measures of the angles around the center of the circle = $\dots\dots\dots^\circ$
 (a) 50 (b) 360 (c) 180 (d) 90
- 39 Which of the following products has a positive sign ?
 (a) -4×5 (b) 12×0 (c) $(-5) \times (-4)$ (d) $(-2) \times 7$
- 40 $-2n + 3(n-1) = \dots\dots\dots$
 (a) $n-3$ (b) $5-n$ (c) $-3-n$ (d) $n-6$



- 41 An amount of 600 pounds was divided between two persons in a ratio 2:4 , what is the share of the smallest ?
 (a) 400 (b) 300 (c) 200 (d) 100
- 42 $13 \dots Q$
 (a) \in (b) \notin (c) \subset (d) $\not\subset$
- 43 $\frac{1}{5} + 60\% = \dots\dots\dots$
 (a) 0 (b) $1\frac{1}{5}$ (c) 65% (d) $\frac{4}{5}$
- 44 If $\frac{12}{15} = \frac{2x}{5}$, then $3x = \dots\dots\dots$
 (a) 12 (b) 6 (c) 18 (d) 9
- 47 The diagonals are perpendicular and not equal in length in
 (a) Rhombus (b) Rectangle (c) Square (d) parallelogram
- 48 5 The set of prime numbers
 (a) \in (b) \notin (c) \subset (d) $\not\subset$
- 49 Which of the following sides cannot be the lengths of the sides of a triangle ?
 (a) 9cm,7cm,5cm (b) 7cm,7cm,7cm (c) 3cm,4cm,7cm (d) 4cm,7cm,7cm
- 50 Lara multiplied two integers together and she got the result (-36) , which of the following has this result ?
 (a) 3×-12 (b) -4×-9 (c) -3×-12 (d) 4×9
- 51 If $\frac{5}{15} = \frac{x-2}{6}$, then $x = \dots\dots\dots$
 (a) 0 (b) 2 (c) 4 (d) 6
- 52 $\frac{-2}{11} \times 5\frac{1}{2} = \dots\dots\dots$
 (a) $6\frac{-3}{5}$ (b) 1 (c) -1 (d) $\frac{-2}{11}$
- 53 $5 + (-5) = 0$ (..... property)
 (a) Additive inverse (b) Commutative (c) Associative (d) Additive identity
- 54 Constant term in algebraic expression $3x + 7y + 8$ is
 (a) 5 (b) 7 (c) 3 (d) 8
- 55 Which of the following equal $5a$?
 (a) $3a - 10$ (b) $3a + 2$ (c) $2a + 3a$ (d) $2a + 3$



- 56 Which of the following drawing scales is equivalent to "every 1 cm in the drawing representing 6.5 km in reality" ?
 (a) 1 : 6,500,000 (b) 1 : 650,000 (c) 1 : 6500 (d) 1 : 6.5
- 57 $5 + |-7| = \dots$
 (a) -12 (b) 5 (c) 7 (d) 12
- 58 From the opposite figure, the measure of the unknown angle =
 (a) 100° (b) 122° (c) 58° (d) 180°
- 59 Which mathematical formula expresses the area (A) of a parallelogram with base length (L) and corresponding height (h)?
 (a) $A = \frac{1}{2} Lh$ (b) $A = L + h$ (c) $A = Lh$ (d) $A = \frac{L}{H}$
- 60 Multiplicative inverse of $2\frac{1}{3}$ is
 (a) $\frac{1}{3}$ (b) $\frac{7}{3}$ (c) $\frac{3}{7}$ (d) $-2\frac{1}{3}$
- 61 $-16 + \dots = 0$
 (a) -16 (b) 0 (c) 16 (d) 1
- 62 Which of the following products of subtraction has a positive sign?
 (a) $4-7$ (b) $6-6$ (c) $10-13$ (d) $7-(-4)$
- 63 The multiplicative identity in the set of integers is
 (a) 0 (b) 1 (c) -1 (d) other
- 64 Saif added two integers and the result was (-2), so what two numbers could have added them together?
 (a) 1, 1 (b) 2, 3 (c) 3, -5 (d) -3, 5
- 65 If $x = |-6|$, $y = -5$ then $Y \times X = \dots$
 (a) 30 (b) 11 (c) -30 (d) -11
- 66 $-65 \div (-13) = \dots$
 (a) 13 (b) 5 (c) 65 (d) -5
- 67 Which of the following ratios is not equivalent to $\frac{1}{4}$?
 (a) $\frac{2}{8}$ (b) $\frac{4}{16}$ (c) $\frac{16}{18}$ (d) $\frac{6}{24}$
- 68 $Q \cup Z = \dots$
 (a) Z (b) N (c) \emptyset (d) Q



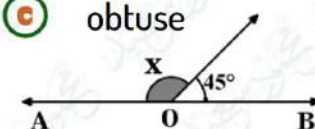
- 69 If the arithmetic mean of six consecutive even numbers is 35, then the smallest of these values =
- a 36 b 34 c 32 d 30
- 70 Which of the following scale drawing represents a minimization ?
- a 70 : 1 b 1 : 7000 c 500 : 1 d 7000 : 1
- 71 The result of adding the two expressions $2x-4y+6$ and $-3x+4y-6$ is
- a $10y+1$ b $-x$ c $-x-12$ d $5y$
- 72 If $x > 0$ and $y < 0$, in which quadrant does the point $(-x, -y)$ lie
- a First b Second c Third d Fourth
- 73 If the length in the drawing is 8 cm and the real length is 320 km, what is the scale of the drawing?
- a 1 : 8,000,000 b 1 : 400,000 c 1 : 800,000 d 1 : 4,000,000
- 74 The sum of measures of the interior angles of a hexagon equals
- a 120 b 540 c 720 d 360
- 75 Which of the following is a solution to the equation: $2(x-5) = 0$ in \mathbb{Q} ?
- a 0 b 5 c -5 d 10
- 76 The diagonals of a rectangle are
- a perpendicular b Equal in length c Equal in length and perpendicular d Bisect the interior angles
- 77 Additive inverse of -9 is
- a 9 b -9 c $\frac{1}{9}$ d $-\frac{1}{9}$
- 78 For a set of values : If $\sum f = 10$ and $\sum (f.x) = 40$, then what is the value of \bar{x} ?
- a 4 b 50 c 30 d 400
- 79 The angle of an interior regular polygon with 10 sides is equal to°
- a 108 b 120 c 144 d 135
- 80 If the mean of five integers is 16, the median is 17, and the mode is 13, then the largest of these numbers is
- a 18 b 19 c 28 d 29
- 81 The sum of the measures of angles around a point equals the measure of
- a 2 right angles b 3 right angles c 4 right angles d 5 right angles
- 82 If the ratio among the measures of 3 angles around a point is 4 : 3 : 2, then the measure of the smaller angle is°
- a 40° b 80° c 160° d 200°



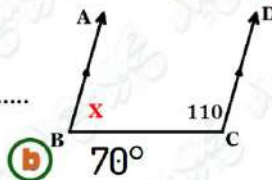
- 83 If ABCD is a parallelogram then what is the value of x in the opposite figure ?



- 84 Saif's age now X is a year, and his age four years ago was 20 years, which of the following equations represents the previous situation?
- 85 $|-24| \div |-8| = \dots\dots$
- 86 If $A = \{3, 2, 4, 8\}$, then $3 \dots\dots A$
- 87 If ABCD is a square, then the angle of ABC is $\dots\dots^\circ$
- 88 The obtuse angle is complemented by the angle of $\dots\dots\dots$
- 89 If the point (a, b) lies in the third quadrant, then the point $(-2a, b-6)$ lies in the $\dots\dots\dots$ quadrant.
- 90 Two vertically opposite angles, one $3X$ and the other 120° , then $x = \dots\dots$
- 91 Two complementary angles, the ratio between their measures is $5 : 7$. Find the measure of the smaller angle $\dots\dots\dots$
- 92 The solution set of the equation $2X + 3 = 13$, if the substitution set is $\{4, 5, 3\}$?
- 93 Two consecutive integers have a sum of 23, which of the following equations expresses this?
- 94 The measure of the central angle of the sector whose area is $\frac{1}{3}$ of the area of the circle = $\dots\dots^\circ$
- 95 A triangle measuring two angles in which $65^\circ, 25^\circ$ the type of triangle relative to its angles
- 96 In the opposite figure : If $O \in \overleftrightarrow{AB}$, then $x = \dots\dots$



97 In the opposite figure, $X = \dots$



a 60°

b 70°

c 110°

d 180°

98 $a + a + a + a = \dots$

a $4a^4$

b a^4

c $4 + a$

d $4a$

99 Express the sum of two consecutive odd numbers is 21

a $m + m + 2 = 21$

b $m - m - 2 = 21$

c $2m - 1 = 21$

d $m + 2 = 21$

100 If an insect in the picture is 4 cm long and its real length is 2 mm, then the scale =

a $20 : 1$

b $22 : 1$

c $1 : 20$

d $1 : 22$

101 If $\frac{m}{20} = \frac{4}{y}$, then $2(m \times y) = \dots$

a 100

b 80

c 160

d 120

102 Write two rational numbers equal to the number $|\frac{2}{5}| = \dots$

a $\frac{6}{15}, \frac{4}{10}$

b $\frac{6}{21}, \frac{9}{21}$

c $\frac{20}{30}, \frac{27}{30}$

d $\frac{2}{3}, \frac{1}{3}$

103 The opposite diagram shows the scale of a map. If the distance between two cities on this map is 5 cm, what is the real distance between them



a 200

b 120

c 100

d 400

104 $3(2x - 5) - 4(x - 6) = \dots$

a $2x - 30$

b $2x + 3$

c $2x + 9$

d $x + 3$

105 Two numbers have a ratio of $2 : 5$, so if the smallest number is 48, what is the largest number =

a 130

b 148

c 100

d 120

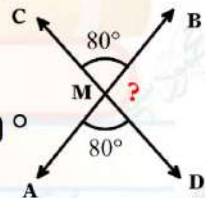
106 In the opposite figure : if $\{M\} = \overline{AB} \cap \overline{CD}$, then what is the value of "?"

a 80°

b 100°

c 120°

d 180°



107 Find the solution set in \mathbb{Q} for the equation $3(x - 5) = -18$

a $\{1\}$

b $\{-1\}$

c $\{2\}$

d $\{-2\}$

108 What is the type of angle measuring $179^\circ 60'$

a right

b acute

c Obtuse

d straight

109 Express with an equation, two consecutive odd numbers sum equal to 100.

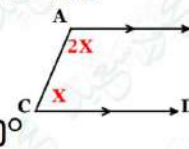
a $m + m + 1 = 100$

b $m + 1 = 100$

c $m + 2 = 100$

d $m + m + 2 = 100$

110 In the opposite figure, find the value of X



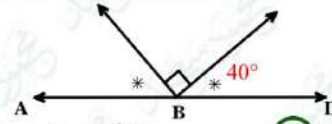
a 30°

b 60°

c 90°

d 180°

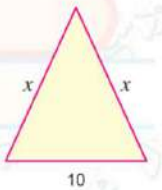
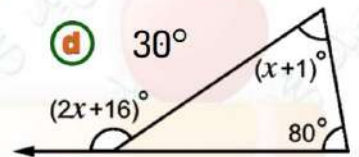




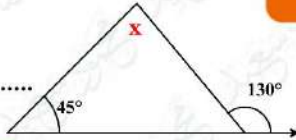
- 111 In the opposite figure, What is the type of angle ?
 (a) right (b) reflex (c) straight (d) obtuse
- 112 Express the following situation with an equation: Ziad's age now X years and 7 years ago was 18 years old
 (a) $X+7=18$ (b) $x-7=18$ (c) $X+7=25$ (d) $x-7=25$
- 113 If $B = \{7, 8, 0\}$, then the number of all subsets of B is
 (a) 2 (b) 4 (c) 6 (d) 8
- 114 The constant term in the algebraic expression $6n - 5n - 9$ is
 (a) 9 (b) -9 (c) -5 (d) 5
- 115 The multiplication inverse of $-3\frac{1}{2}$ is
 (a) $\frac{7}{2}$ (b) $-\frac{7}{2}$ (c) $\frac{2}{7}$ (d) $-\frac{2}{7}$
- 116 If $x : 36 = 25 : 20$, then what is the value of x
 (a) 45 (b) 36 (c) 900 (d) 25
- 117 The solution set for : $13 + 5x = 3$ in N is
 (a) $\{-2\}$ (b) $\{2\}$ (c) $\{-10\}$ (d) \emptyset
- 118 The reciprocal of the number $0.\overline{36}$ is
 (a) $\frac{4}{11}$ (b) $-\frac{4}{11}$ (c) $4\frac{2}{3}$ (d) $2\frac{3}{4}$
- 119 $9 \dots \{2, 8, 7\}$
 (a) \in (b) \notin (c) \subset (d) $\not\subset$
- 120 $(-4) \times (-8) \times 25 \times (-125) = \dots$
 (a) -1000 (b) 10,000 (c) -100,000 (d) -100
- 121 The median of the values 7,8,9,4,6,2 is
 (a) 9 (b) 6.5 (c) 7 (d) 13
- 122 The type of the angle that supplements an obtuse angle is
 (a) Right angles (b) Acute angle (c) Zero angle (d) other
- 123 $-7 \times 99 = \dots$
 (a) 693 (b) 735 (c) -693 (d) -735
- 124 If $A = \{5, 7\}$, the number of subsets of the set A is
 (a) 2 (b) 4 (c) 6 (d) 8
- 125 If the length of a road on a map drawn to a scale as $1 : 900,000$ is 11 cm, the real length of the road in kilometres is
 (a) 9 (b) 5 (c) 90 (d) 99



- 126 The mode of the number : 5,4,6,8,4,5,4,8 is
- (a) 6 (b) 4 (c) 5 (d) 8
- 127 The measure of the central angle of the circular sector which represent 30 % of the area of the circle is
- (a) 180° (b) 108° (c) 118° (d) 72°
- 128 If 15 % of x equals 20 % of y , the ratio of x : y is
- (a) 5:4 (b) 3:2 (c) 4:3 (d) 3:4
- 129 The number of axes of symmetry of a regular hexagon is
- (a) 2 (b) 4 (c) 6 (d) 8
- 130 The projection of the point $(-7, 3)$ on the y - axis is
- (a) $(0, -3)$ (b) $(3, -7)$ (c) $(0, 3)$ (d) $(0, 0)$
- 131 $\frac{6}{37} \times 7 + \frac{6}{37} \times 5 + \frac{6}{37} \times (-11) = \dots\dots\dots$
- (a) $\frac{6}{37}$ (b) $\frac{12}{37}$ (c) 100 (d) -11
- 132 Subtracting $8x - 7y$ from $5x - 2y$ the result is
- (a) $-3x - 5y$ (b) $3x + 5y$ (c) $3x - 5y$ (d) $5y - 3x$
- 133 If $\frac{8}{x+4} = \frac{3}{9}$ the value of x is
- (a) 8 (b) 9 (c) 10 (d) 20
- 134 If $\angle X$ is complementary to $\angle Y$, and $M(\angle X) = 2 M(\angle Y)$, then the measure of $\angle Y$ is
- (a) 120° (b) 60° (c) 45° (d) 30°
- 135 In the opposite figure the value of X is
- (a) 65° (b) 88° (c) 120° (d) 55°
- 136 If the perimeter of triangle is 34 in the opposite figure , then the value of X is
- (a) 14 (b) 24 (c) 12 (d) 10
- 137 If $\frac{14}{x} = \frac{y}{7}$, then $xy = \dots\dots\dots$
- (a) 14 (b) 80 (c) 98 (d) 7
- 138 If 13,500 tourists represent 12 % of a tourists group , then the number of tourists in the entire group is tourists.
- (a) 100,250 (b) 110,200 (c) 112,500 (d) 13,500
- 139 Hesham packed 100 cardboard boxes in 2.5 hours. It would take Hesham Hours to pack 160 boxes , working at the same rate.
- (a) 2 (b) 4 (c) 8 (d) 9



Find the value of X



140

a 85°

b 45°

c 130°

d 180°

141

$-2 - (-3) = \dots\dots\dots$

a -1

b 1

c -5

d 5

142

$24\frac{1}{3}\% + \dots\dots\dots = 0.\bar{3}$

a 8%

b 9%

c 10%

d 11%

143

The value of the expression $(4x - 10)$ at $x = -1$ equals

a 10

b -14

c 14

d -10

144

If Omar has x ten-pound banknotes in addition to 1 one-hundred-pound banknotes, and the total amount of Omar's money is 330 pounds, then $x = \dots\dots\dots$

a 20

b 30

c 33

d 23

145

A parallelogram with a base length of 12 cm, its corresponding height is $(3x-1)$ cm and its area is 60 squared centimeters, then $x = \dots\dots\dots$

a 2

b 4

c 6

d 8

146

$5x - (-4x) = \dots\dots\dots$

a $-x$

b x

c $-9x$

d $9x$

147

180 pounds are to be divided between two persons in the ratio 7 : 5, the larger share is

a 135 pounds

b 105 pounds

c 75 pounds

d 60 pounds

148

If the arithmetic mean of five integers is 14, the median is 15, and the mode is 11, then the greatest of these integers is

a 19

b 14

c 17

d 18

149

The simplest form of the expression $a + a + b + a + b$ is

a $3a + 2b$

b $3a + b + b$

c $a^3 + 2b$

d $a^3 + b^2$

150

If $A = \{1, 3, 5\}$ and $B = \{2, 3, 4\}$, then $A \cap B = \dots\dots\dots$

a $\{1\}$

b $\{2\}$

c $\{1, 2\}$

d $\{3\}$

151

The measure of each interior angle in a regular octagon is

a 144°

b 135°

c 180°

d 120°

152

From the following table, the measure of central angle corresponding to the coffee sector is

Drink	Coffee	Tea	juices
people	150	350	100

a 45°

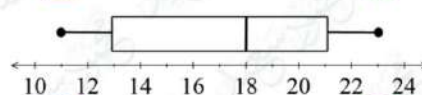
b 90°

c 120°

d 150°

153

From the adjacent box plot, the range is



a 10

b 12

c 14

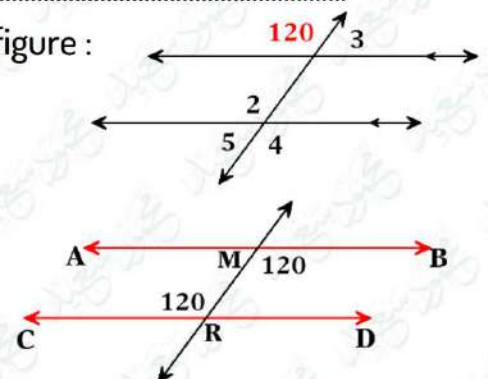
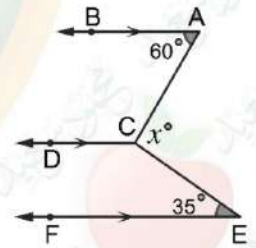
d 16



Question 02

Answer the following questions

- 1 If $a = 3$, $b = -3$ and $c = 2$, find the result of each of the following :
- $2a + b + c$
 - $3b + 5c$
 - $ab - 5c$
-
- 2 A picture of a butterfly with a real length of 2.5 cm and a length in the picture of 2 metres, find the scale of the drawing?
-
- 3 A factory produces 1500 lamps in 3 hours, calculate the production rate of the factory in two hours?
-
- 4 A school with $(8X + 15)$ girls and $(7X - 10)$ boys, write a mathematical expression that shows how many more girls there are than boys in this school.
-
- 5 With proof find the value of X in the opposite figure :
-
-
-
- 6 Ahmed bought 10 apples for 70 pounds, how many apples of the same type can he buy for 98 pounds?
-
- 7 If the number of students in a school is 650 and the ratio between the number of boys to the number of girls is 6 : 7, calculate the increase in the number of girls compared to the number of boys?
-
- 9 Find the measures of the numbered angles in the opposite figure :
-
- 10 In the opposite figure , prove that $\overrightarrow{AB} \parallel \overrightarrow{CD}$:
-

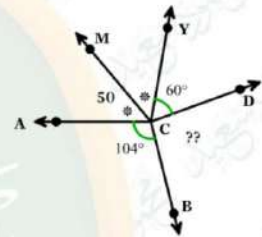


11 A football field is rectangular shape, and its length is 15 meters less than twice its width. If its perimeter is 330 meters , find the dimensions of the field.

12 If the price of a mobile phone in store is 12,750 LE and its price was reduced by 8 % , what will be the price after the discount ?

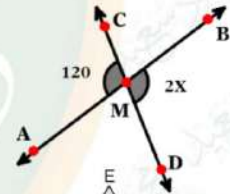
13 Write all the subsets of the set $B = \{ 2 , 7 , 9 \}$ and state their number.

14 In the opposite figure, find $M (\angle BCD) :$



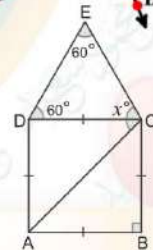
15 Add the two algebraic expressions : $3x + 2y$ and $5y - 6x + 2$, then find the numerical value of the result when $x = 3$, $y = -1$

16 If $\overrightarrow{CD} \cap \overrightarrow{AB} = \{M\}$, Find the value of X

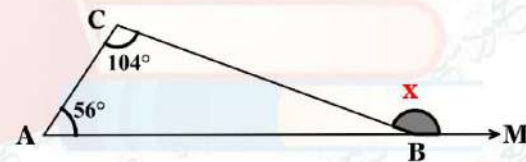


Find with proof the value of X ?

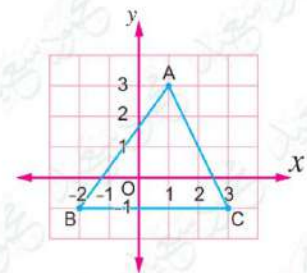
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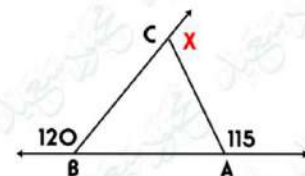
18 Find with proof the value of X ?



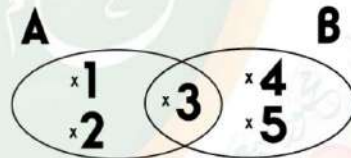
19 In the opposite figure find the coordinates of A, C and B and find the area of triangle?



20 In the opposite figure find the value of X ?



- 21) What is the decrease of : $7a - 2b + 5c$ than $(3b - 5a + c)$?
- 22) An object on Earth weighs 90 Newton, so if you know that its weight on the Moon is 15 Newton, how much does another body weigh on the Moon if its weight on Earth is 60 Newton?
- 23) If 100 grams of chocolate gives 300 calories, find the number of calories in 30 grams of the same type of chocolate?
- 24) Find the value of A and B in the sets $\{4, 3, 7, A\} = \{5, B, 3, 7\}$?
- 25) If the price of fridge last year was 6,250 LE, and its price increased this year to 7,000 LE, find the rate of increase?
- 26) From the given shape , determine :
- 1) A , B
 - 2) $A \cup B$
 - 3) $A \cap B$
- 27) Saif bought a car for 100,000 pounds and then sold it with a gain of 5% of the purchase price, calculate the selling price of Saif for the car after the increase ?
- 28) If $Y = \frac{4}{9}$, $X = \frac{-2}{9}$, then find $2X + Y$ in simplest form.
- 29) If $A = 3$, $B = [-3]$, $C = 2$, then find :
- 1) $(A \times B) \div C$
 - 2) $(B \div C) \times A$



- 30 If the ratio between the side lengths of a triangle with a perimeter of 150 cm is 3 : 5 : 7, calculate the length of its largest side?

.....

- 31 Represent in a Venn diagram :

$$A = \{7, 9\}, B = \{7, 6, 5\}$$

.....

- 32 A person distributed an amount of money to three people, so he gives the first $(7 + x)$ pounds, and give the second $(1 + x3)$ pounds, and the third, $(2 - x2)$ pounds, write in the simplest form the algebraic amount that expresses the amount that was distributed, and if $x = 10$, what is the value of this amount ?

.....

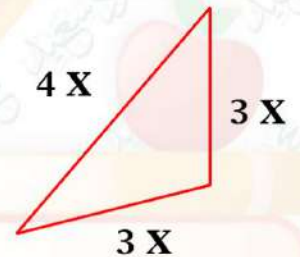
- 33 A liquid whose temperature was 20 degrees below zero , after heating its temperature raised by 8 degrees Celsius, calculate the temperature of the liquid after heating?

.....

- 34 Use the properties of addition in Z to find: $17 + 32 + (-17)$

.....

- 35 Find the mathematical expression representing the perimeter of the opposite triangle in the simplest form , then find its numerical value at $X = 2$



- 36 Four people bought tickets to enter the Egyptian Museum in Cairo, and they also bought souvenirs for 500 pounds, if the total cost is 620 pounds, write an equation that represents this situation, what is the price of one ticket?

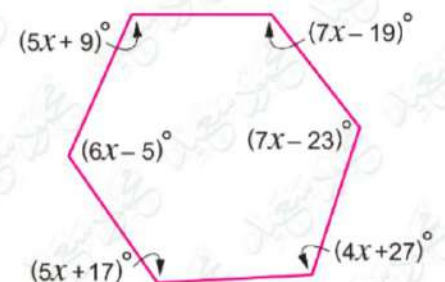
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- 37 From the opposite figure find the value of X ?

.....

.....

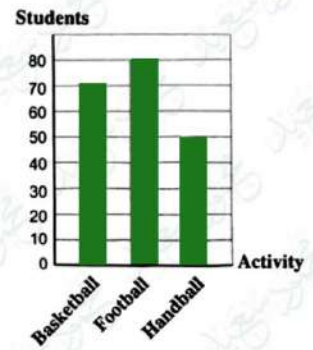
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38

The opposite bar graph shows the distribution of students in summer activities according to their preferences. Fill in the table below And then represent this data using a pie chart :

Activity	Basketball	Foot ball	handball
percentages % % %



39

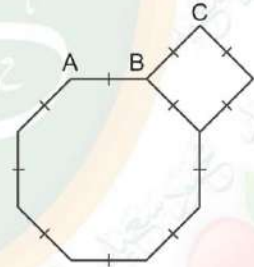
The opposite table represents the number of votes each of Khaled , Anas and Hamza gained in the classroom election. Use a pie chart to represent this data :

Student name	khaled	Anas	Hamza
Number of votes	8	12	10



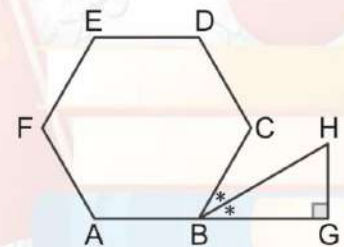
40

From the opposite figure find $M(\angle ABC)$?



41

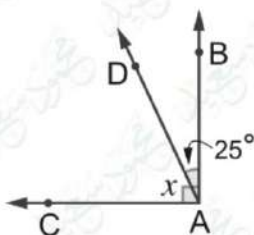
Find the $M(\angle H)$?



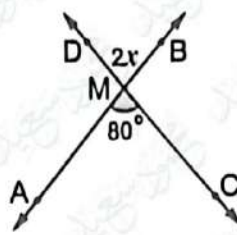
Question 03

Find the value of X

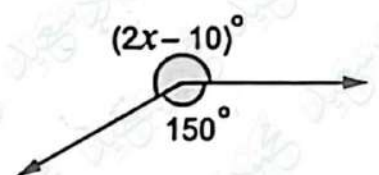
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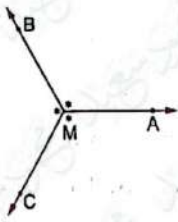
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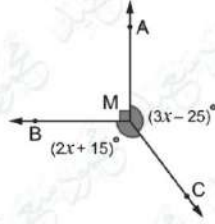
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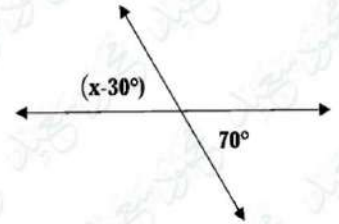
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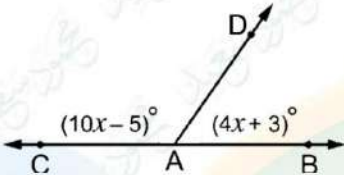
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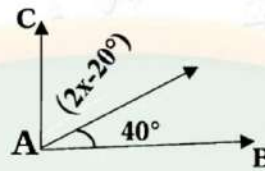
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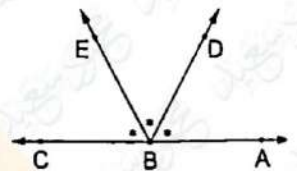
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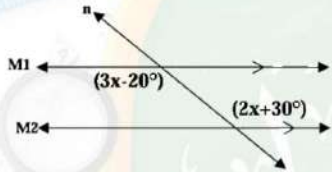
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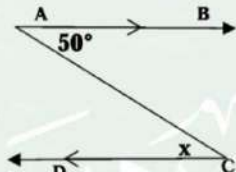
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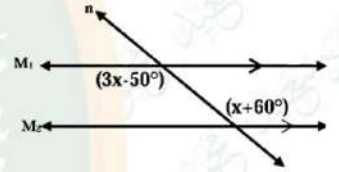
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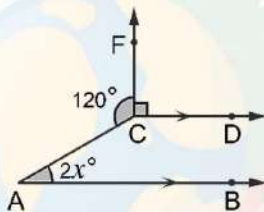
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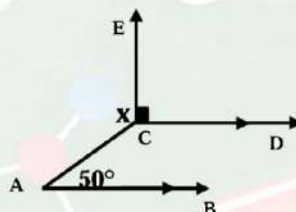
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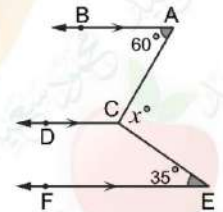
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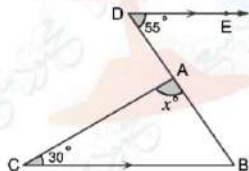
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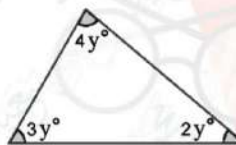
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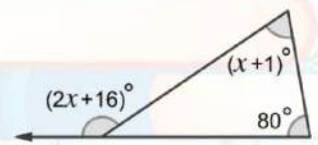
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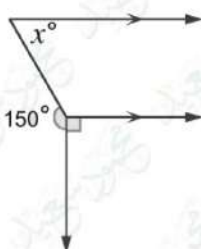
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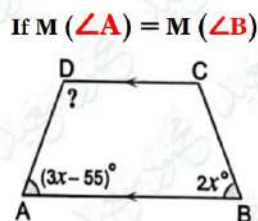
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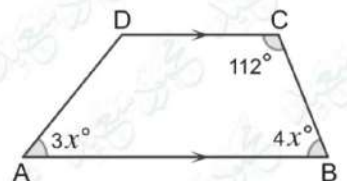
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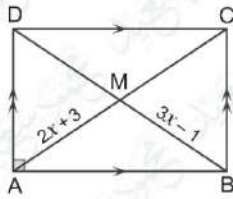
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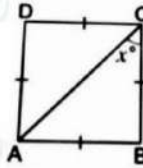


- 22** In the opposite rectangle find the value of X



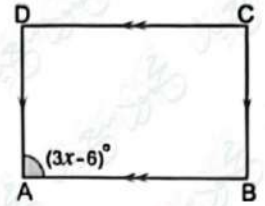
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- 23** In the opposite square find the value of X



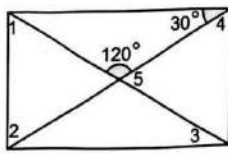
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- 24** In the opposite rectangle find the value of X



.....
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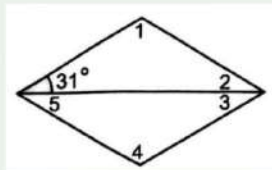
- 25** Find the measure of the numbered angles :



Rectangle

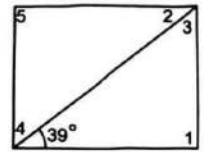
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- 26** Find the measure of the numbered angles :



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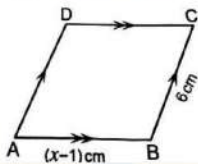
- 27** Find the measure of the numbered angles :



Rectangle

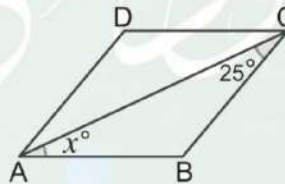
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- 28** In a Rhombus :



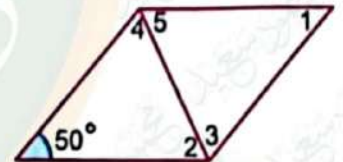
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- 29** In a Rhombus :



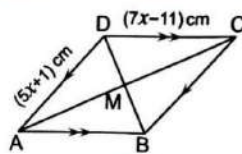
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- 30** In a Rhombus :



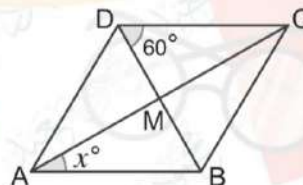
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- 31** In a Rhombus :



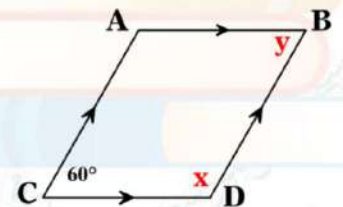
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- 32** In a Rhombus :

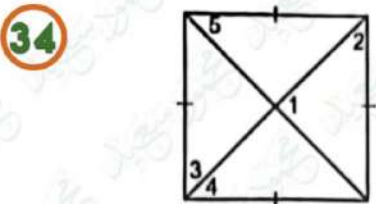


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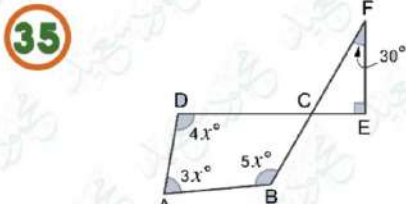
- 33** Find the value of X and Y



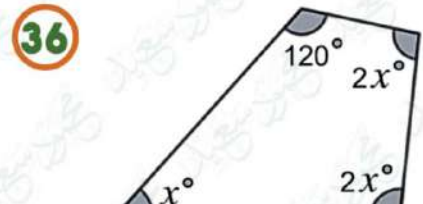
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تم بحمد الله ،





First term Questions Bank



Question 01

Choose the correct answer

- 1 The arithmetic mean of the values 6,4,7,3 is
☐ a 4 ☐ b 20 ☐ c 5 ☐ d 5.5
- 2 The circular sector that represents the area of the circle °
☐ a 360 ☐ b 180 ☐ c 90 ☐ d 40
- 3 If $X \notin \{7,2,5\}$, which of the following can be X ?
☐ a 2 ☐ b 7 ☐ c 1 ☐ d 5
- 4 If $\{X,3\} = \{5,Y\}$, what is the value $X+Y$?
☐ a 15 ☐ b 8 ☐ c 3 ☐ d 5
- 5 If $X \in \{3,12,7\}$, then X cannot be equal to
☐ a 3 ☐ b 7 ☐ c 15 ☐ d 12
- 6 The result of subtracting $7y-6$ from $3y+7$ is
☐ a $10y + 13$ ☐ b $-4y + 13$ ☐ c $4y + 13$ ☐ d $2y + 5$
- 7 If the median is the seventh, then the number of values is
☐ a 7 ☐ b 13 ☐ c 14 ☐ d 15
- 9 If $A \subset B$, then $A \cup B =$
☐ a B ☐ b A ☐ c \emptyset ☐ d other
- 10 A man distributed 15,000 pounds to two people in a ratio of 2:3 what is the share of each of them ?
☐ a 5000 , 10000 ☐ b 6000 , 9000 ☐ c 7000 , 8000 ☐ d 12000 , 3000
- 11 $(-8) + (-3) =$
☐ a 11 ☐ b 3 ☐ c -11 ☐ d 8
- 12 The projection of the point $(-2,0)$ on the X-axis is
☐ a $(-2,0)$ ☐ b $(0,0)$ ☐ c $(0,2)$ ☐ d $(2,0)$
- 13 Two integers whose product is -4 and whose sum is 0, what are the two numbers ?
☐ a 1, -4 ☐ b -1, 4 ☐ c -2, 2 ☐ d 0, 4



- 14 If $A = \{2, 4, 1\}$, $B = \{3, 1, 4\}$ then $A \cap B = \dots$
 (a) $\{1, 4\}$ (b) $\{1\}$ (c) $\{4\}$ (d) \emptyset
- 15 If the distance between Cairo and Damietta is 400 Km in reality and the distance between them on the map is 8 Cm, Find the scale of this map ?
 (a) 1 : 50,000 (b) 1 : 500,000 (c) 1 : 5,000,000 (d) 1 : 50,000,000
- 16 The additive inverse of the expression $7a - 2b + 9$
 (a) $-7a - 2b - 9$ (b) $-7a + 2b - 9$
 (c) $7a - 2b - 9$ (d) $-7a + 2b + 9$
- 17 The number of subsets of a set containing 4 elements is equal to set.
 (a) 4 (b) 8 (c) 16 (d) 32
- 18 Number of triangles in a pentagon =
 (a) 7 (b) 5 (c) 4 (d) 3
- 19 If point (2,5) is the midpoint of AB where A is (4,1) then B =
 (a) $(0, 9)$ (b) $(3, 3)$ (c) $(8, 10)$ (d) $(1, 4)$
- 20 If the map scale is 1 : 1,000,000 and the real distance between two points is 45 Km , what is the distance between the two points in Cm ?
 (a) 450 (b) 4.5 (c) 45 (d) 4500
- 21 Which of the following are like algebraic terms ?
 (a) X, 2 (b) x^2, y^2 (c) $3a, 8a$ (d) 7, 7X
- 22 4 $\{1, 2, 5\}$
 (a) \in (b) \notin (c) \subset (d) $\not\subset$
- 23 If the arithmetic mean of the values 3, 4, 5, 6, x is 4 then x =
 (a) 2 (b) 3 (c) 4 (d) 5
- 24 is dividing two or more things into known proportions.
 (a) Drawing scale (b) Proportion (c) Ratio (d) Mean
- 25 Any triangle has at least two angles.
 (a) acute (b) right (c) obtuse (d) other
- 26 The midpoint of (3,1), (3,-1) is
 (a) $(0, 6)$ (b) $(6, 0)$ (c) $(3, 0)$ (d) $(0, 3)$



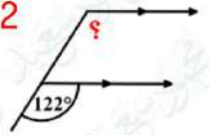
- 27 How many subsets of the set $B = \{3, 7\}$?
 (a) 2 (b) 4 (c) 6 (d) 8
- 28 $10 + [-8] = \dots\dots\dots$
 (a) -2 (b) 2 (c) 18 (d) 8
- 29 If the price of a dress is 810 pounds after the discount, and if the discount rate is 10% of the original price, calculate the price of the dress before the discount?
 (a) 891 (b) 900 (c) 960 (d) 860
- 30 If $2x=2$, then $3x-1 = \dots\dots\dots$
 (a) 3 (b) 1 (c) 4 (d) 2
- 31 Vertically opposite angles are complementary, each of which has a measure of $\dots\dots\dots^\circ$
 (a) 180 (b) 45 (c) 90 (d) 30
- 32 If the arithmetic mean of the numbers $x+1, 8, 4+2x, x-5, x+2$ is 7, then $x=\dots\dots\dots$
 (a) 6 (b) 5 (c) 4 (d) 3
- 33 Which of the following equation has no solution in Z ?
 (a) $6x=24$ (b) $6x=18$ (c) $6x=15$ (d) $6x=12$
- 34 If the price of a commodity decreases from 1500 pounds to 1200 pounds , what is the rate of reduction ?
 (a) 30 % (b) 20 % (c) 15 % (d) 3 %
- 35 The algebraic expression that expresses " twice the number a plus 7 " is
 (a) $2b+7$ (b) $2a-7$ (c) $2a+7$ (d) $7a$
- 36 Number of axes of symmetry of an isosceles trapezium =
 (a) 3 (b) 2 (c) 1 (d) 0
- 37 If ABCD is a parallelogram and $m(\angle C) + m(\angle A) = 140^\circ$, then the $m(\angle B)$ is
 (a) 220 (b) 40 (c) 110 (d) 70
- 38 The sum of the measures of the angles around the center of the circle = $\dots\dots\dots^\circ$
 (a) 50 (b) 360 (c) 180 (d) 90
- 39 Which of the following products has a positive sign ?
 (a) -4×5 (b) 12×0 (c) $(-5) \times (-4)$ (d) $(-2) \times 7$
- 40 $-2n + 3(n-1) = \dots\dots\dots$
 (a) $n-3$ (b) $5-n$ (c) $-3-n$ (d) $n-6$



- 41 An amount of 600 pounds was divided between two persons in a ratio 2:4 , what is the share of the smallest ?
 (a) 400 (b) 300 (c) 200 (d) 100
- 42 $13 \dots Q$
 (a) \in (b) \notin (c) \subset (d) $\not\subset$
- 43 $\frac{1}{5} + 60\% = \dots\dots\dots$
 (a) 0 (b) $1\frac{1}{5}$ (c) 65 % (d) $\frac{4}{5}$
- 44 If $\frac{12}{15} = \frac{2x}{5}$, then $3x = \dots\dots\dots$
 (a) 12 (b) 6 (c) 18 (d) 9
- 47 The diagonals are perpendicular and not equal in length in
 (a) Rhombus (b) Rectangle (c) Square (d) parallelogram
- 48 5 The set of prime numbers
 (a) \in (b) \notin (c) \subset (d) $\not\subset$
- 49 Which of the following sides cannot be the lengths of the sides of a triangle ?
 (a) 9cm,7cm,5cm (b) 7cm,7cm,7cm (c) 3cm,4cm,7cm (d) 4cm,7cm,7cm
- 50 Lara multiplied two integers together and she got the result (-36) , which of the following has this result ?
 (a) 3×-12 (b) -4×-9 (c) -3×-12 (d) 4×9
- 51 If $\frac{5}{15} = \frac{x-2}{6}$, then $x = \dots\dots\dots$
 (a) 0 (b) 2 (c) 4 (d) 6
- 52 $\frac{-2}{11} \times 5\frac{1}{2} = \dots\dots\dots$
 (a) $6\frac{-3}{5}$ (b) 1 (c) -1 (d) $\frac{-2}{11}$
- 53 $5 + (-5) = 0$ (..... property)
 (a) Additive inverse (b) Commutative (c) Associative (d) Additive identity
- 54 Constant term in algebraic expression $3x + 7y + 8$ is
 (a) 5 (b) 7 (c) 3 (d) 8
- 55 Which of the following equal $5a$?
 (a) $3a - 10$ (b) $3a + 2$ (c) $2a + 3a$ (d) $2a + 3$



- 56 Which of the following drawing scales is equivalent to "every 1 cm in the drawing representing 6.5 km in reality" ?
 (a) 1 : 6,500,000 (b) 1 : 650,000 (c) 1 : 6500 (d) 1 : 6.5
- 57 $5 + |-7| = \dots$
 (a) -12 (b) 5 (c) 7 (d) 12
- 58 From the opposite figure, the measure of the unknown angle =
 (a) 100° (b) 122° (c) 58° (d) 180°
- 59 Which mathematical formula expresses the area (A) of a parallelogram with base length (L) and corresponding height (h)?
 (a) $A = \frac{1}{2} Lh$ (b) $A = L + h$ (c) $A = Lh$ (d) $A = \frac{L}{H}$
- 60 Multiplicative inverse of $2\frac{1}{3}$ is
 (a) $\frac{1}{3}$ (b) $\frac{7}{3}$ (c) $\frac{3}{7}$ (d) $-2\frac{1}{3}$
- 61 $-16 + \dots = 0$
 (a) -16 (b) 0 (c) 16 (d) 1
- 62 Which of the following products of subtraction has a positive sign?
 (a) $4-7$ (b) $6-6$ (c) $10-13$ (d) $7-(-4)$
- 63 The multiplicative identity in the set of integers is
 (a) 0 (b) 1 (c) -1 (d) other
- 64 Saif added two integers and the result was (-2), so what two numbers could have added them together?
 (a) 1, 1 (b) 2, 3 (c) 3, -5 (d) -3, 5
- 65 If $x = |-6|$, $y = -5$ then $Y \times X = \dots$
 (a) 30 (b) 11 (c) -30 (d) -11
- 66 $-65 \div (-13) = \dots$
 (a) 13 (b) 5 (c) 65 (d) -5
- 67 Which of the following ratios is not equivalent to $\frac{1}{4}$?
 (a) $\frac{2}{8}$ (b) $\frac{4}{16}$ (c) $\frac{16}{18}$ (d) $\frac{6}{24}$
- 68 $Q \cup Z = \dots$
 (a) Z (b) N (c) \emptyset (d) Q



- 69 If the arithmetic mean of six consecutive even numbers is 35, then the smallest of these values =
- a 36 b 34 c 32 d 30
- 70 Which of the following scale drawing represents a minimization ?
- a 70 : 1 b 1 : 7000 c 500 : 1 d 7000 : 1
- 71 The result of adding the two expressions $2x-4y+6$ and $-3x+4y-6$ is
- a $10y+1$ b $-x$ c $-x-12$ d $5y$
- 72 If $x > 0$ and $y < 0$, in which quadrant does the point $(-x, -y)$ lie
- a First b Second c Third d Fourth
- 73 If the length in the drawing is 8 cm and the real length is 320 km, what is the scale of the drawing?
- a 1 : 8,000,000 b 1 : 400,000 c 1 : 800,000 d 1 : 4,000,000
- 74 The sum of measures of the interior angles of a hexagon equals
- a 120 b 540 c 720 d 360
- 75 Which of the following is a solution to the equation: $2(x-5) = 0$ in \mathbb{Q} ?
- a 0 b 5 c -5 d 10
- 76 The diagonals of a rectangle are
- a perpendicular b Equal in length c Equal in length and perpendicular d Bisect the interior angles
- 77 Additive inverse of $|-9| =$
- a 9 b -9 c $\frac{1}{9}$ d $-\frac{1}{9}$
- 78 For a set of values : If $\sum f = 10$ and $\sum(f.x) = 40$, then what is the value of \bar{x} ?
- a 4 b 50 c 30 d 400
- 79 The angle of an interior regular polygon with 10 sides is equal to°
- a 108 b 120 c 144 d 135
- 80 If the mean of five integers is 16, the median is 17, and the mode is 13, then the largest of these numbers is
- a 18 b 19 c 28 d 29
- 81 The sum of the measures of angles around a point equals the measure of.....
- a 2 right angles b 3 right angles c 4 right angles d 5 right angles
- 82 If the ratio among the measures of 3 angles around a point is 4 : 3 : 2, then the measure of the smaller angle is°
- a 40° b 80° c 160° d 200°



83 If ABCD is a parallelogram then what is the value of x in the opposite figure ?



- ☐ a 30 ☐ b 45 ☐ c 60 ☐ d 120

84 Saif's age now X is a year, and his age four years ago was 20 years, which of the following equations represents the previous situation?

- ☐ a $X+4=20$ ☐ b $X-4=16$ ☐ c $X+4=16$ ☐ d $X-4=20$

85 $|-24| \div |-8| = \dots\dots\dots$

- ☐ a -3 ☐ b 8 ☐ c 4 ☐ d 3

86 If $A = \{3, 2, 4, 8\}$, then $3 \dots\dots\dots A$

- ☐ a \subset ☐ b \notin ☐ c \nsubseteq ☐ d \in

87 If ABCD is a square, then the angle of ABC is $\dots\dots\dots^\circ$

- ☐ a 90 ☐ b 45 ☐ c 30 ☐ d 100

88 The obtuse angle is complemented by the angle of $\dots\dots\dots$

- ☐ a Zero angle ☐ b acute ☐ c obtuse ☐ d right

89 If the point (a, b) lies in the third quadrant, then the point $(-2a, b-6)$ lies in the $\dots\dots\dots$ quadrant.

- ☐ a first ☐ b second ☐ c third ☐ d fourth

90 Two vertically opposite angles, one $3X$ and the other 120° , then $x = \dots\dots\dots$

- ☐ a 30° ☐ b 40° ☐ c 60° ☐ d 120°

91 Two complementary angles, the ratio between their measures is $5 : 7$. Find the measure of the smaller angle $\dots\dots\dots$

- ☐ a 52.5 ☐ b 37.5 ☐ c 22.2 ☐ d 45.7

92 The solution set of the equation $2X + 3 = 13$, if the substitution set is $\{4, 5, 3\}$?

- ☐ a 3 ☐ b 5 ☐ c 4 ☐ d \emptyset

93 Two consecutive integers have a sum of 23, which of the following equations expresses this?

- ☐ a $X+X+1=23$ ☐ b $X+X-2=23$ ☐ c $2X+X+1=23$ ☐ d $X+X-1=23$

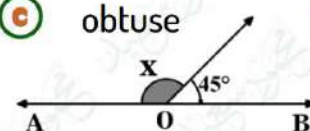
94 The measure of the central angle of the sector whose area is $\frac{1}{3}$ of the area of the circle = $\dots\dots\dots^\circ$

- ☐ a 30 ☐ b 60 ☐ c 90 ☐ d 120

95 A triangle measuring two angles in which $65^\circ, 25^\circ$ the type of triangle relative to its angles

- ☐ a right ☐ b acute ☐ c obtuse ☐ d other

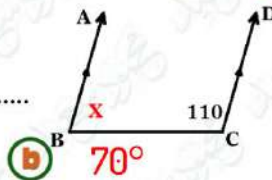
In the opposite figure : If $O \in \overleftrightarrow{AB}$, then $x = \dots\dots\dots$



- ☐ a 45° ☐ b 90° ☐ c 135° ☐ d 180°



97 In the opposite figure, $X = \dots$



(a) 60°

(b) 70°

(c) 110°

(d) 180°

98 $a + a + a + a = \dots$

(a) $4a^4$

(b) a^4

(c) $4 + a$

(d) $4a$

99 Express the sum of two consecutive odd numbers is 21

(a) $m + m + 2 = 21$

(b) $m - m - 2 = 21$

(c) $2m - 1 = 21$

(d) $m + 2 = 21$

100 If an insect in the picture is 4 cm long and its real length is 2 mm, then the scale =

(a) $20 : 1$

(b) $22 : 1$

(c) $1 : 20$

(d) $1 : 22$

101 If $\frac{m}{20} = \frac{4}{y}$, then $2(m \times y) = \dots$

(a) 100

(b) 80

(c) 160

(d) 120

102 Write two rational numbers equal to the number $|\frac{2}{5}| = \dots$

(a) $\frac{6}{15}, \frac{4}{10}$

(b) $\frac{6}{21}, \frac{9}{21}$

(c) $\frac{20}{30}, \frac{27}{30}$

(d) $\frac{2}{3}, \frac{1}{3}$

103 The opposite diagram shows the scale of a map. If the distance between two cities on this map is 5 cm, what is the real distance between them



(a) 200

(b) 120

(c) 100

(d) 400

104 $3(2x - 5) - 4(x - 6) = \dots$

(a) $2x - 30$

(b) $2x + 3$

(c) $2x + 9$

(d) $x + 3$

105 Two numbers have a ratio of $2 : 5$, so if the smallest number is 48, what is the largest number =

(a) 130

(b) 148

(c) 100

(d) 120

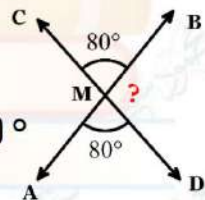
106 In the opposite figure : if $\{M\} = \overline{AB} \cap \overline{CD}$, then what is the value of "?"

(a) 80°

(b) 100°

(c) 120°

(d) 180°



107 Find the solution set in \mathbb{Q} for the equation $3(x - 5) = -18$

(a) $\{1\}$

(b) $\{-1\}$

(c) $\{2\}$

(d) $\{-2\}$

108 What is the type of angle measuring $179^\circ 60'$

(a) right

(b) acute

(c) Obtuse

(d) straight

109 Express with an equation, two consecutive odd numbers sum equal to 100.

(a) $m + m + 1 = 100$

(b) $m + 1 = 100$

(c) $m + 2 = 100$

(d) $m + m + 2 = 100$

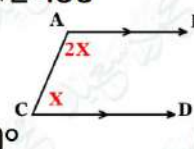
110 In the opposite figure, find the value of X

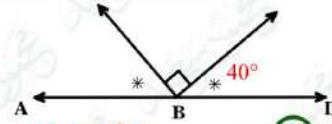
(a) 30°

(b) 60°

(c) 90°

(d) 180°

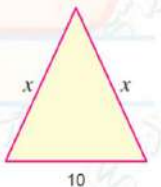
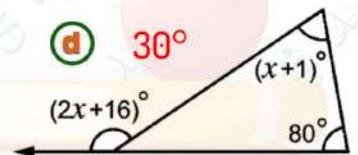




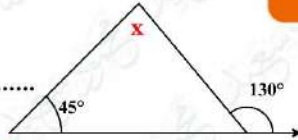
- 111 In the opposite figure, What is the type of angle ?
 (a) right (b) reflex (c) **straight** (d) obtuse
- 112 Express the following situation with an equation: Ziad's age now X years and 7 years ago was 18 years old
 (a) $X+7=18$ (b) **$x-7=18$** (c) $X+7=25$ (d) $x-7=25$
- 113 If $B = \{7, 8, 0\}$, then the number of all subsets of B is
 (a) 2 (b) 4 (c) 6 (d) **8**
- 114 The constant term in the algebraic expression $6n - 5n - 9$ is
 (a) 9 (b) **-9** (c) -5 (d) 5
- 115 The multiplication inverse of $-3\frac{1}{2}$ is
 (a) $\frac{7}{2}$ (b) **$-\frac{7}{2}$** (c) $\frac{2}{7}$ (d) **$-\frac{2}{7}$**
- 116 If $x : 36 = 25 : 20$, then what is the value of x
 (a) **45** (b) 36 (c) 900 (d) 25
- 117 The solution set for : $13 + 5x = 3$ in N is
 (a) $\{-2\}$ (b) $\{2\}$ (c) $\{-10\}$ (d) **\emptyset**
- 118 The reciprocal of the number $0.\overline{36}$ is
 (a) $\frac{4}{11}$ (b) $\frac{-4}{11}$ (c) $4\frac{2}{3}$ (d) **$2\frac{3}{4}$**
- 119 $9 \dots \{2, 8, 7\}$
 (a) \in (b) **\notin** (c) \subset (d) **$\not\subset$**
- 120 $(-4) \times (-8) \times 25 \times (-125) = \dots$
 (a) -1000 (b) 10,000 (c) **-100,000** (d) -100
- 121 The median of the values 7,8,9,4,6,2 is
 (a) 9 (b) **6.5** (c) 7 (d) 13
- 122 The type of the angle that supplements an obtuse angle is
 (a) Right angles (b) **Acute angle** (c) Zero angle (d) other
- 123 $-7 \times 99 = \dots$
 (a) 693 (b) 735 (c) **-693** (d) -735
- 124 If $A = \{5, 7\}$, the number of subsets of the set A is
 (a) 2 (b) **4** (c) 6 (d) 8
- 125 If the length of a road on a map drawn to a scale as $1 : 900,000$ is 11 cm, the real length of the road in kilometres is
 (a) 9 (b) 5 (c) 90 (d) **99**



- 126 The mode of the number : 5,4,6,8,4,5,4,8 is
- (a) 6 (b) 4 (c) 5 (d) 8
- 127 The measure of the central angle of the circular sector which represent 30 % of the area of the circle is
- (a) 180° (b) 108° (c) 118° (d) 72°
- 128 If 15 % of x equals 20 % of y , the ratio of x : y is
- (a) 5:4 (b) 3:2 (c) 4:3 (d) 3:4
- 129 The number of axes of symmetry of a regular hexagon is
- (a) 2 (b) 4 (c) 6 (d) 8
- 130 The projection of the point [-7 , 3] on the y - axis is
- (a) [0 , -3] (b) [3 , -7] (c) [0 , 3] (d) [0 , 0]
- 131 $\frac{6}{37} \times 7 + \frac{6}{37} \times 5 + \frac{6}{37} \times (-11) = \dots\dots\dots$
- (a) $\frac{6}{37}$ (b) $\frac{12}{37}$ (c) 100 (d) -11
- 132 Subtracting $8x - 7y$ from $5x - 2y$ the result is
- (a) $-3x - 5y$ (b) $3x + 5y$ (c) $3x - 5y$ (d) $5y - 3x$
- 133 If $\frac{8}{x+4} = \frac{3}{9}$ the value of x is
- (a) 8 (b) 9 (c) 10 (d) 20
- 134 If $\angle X$ is complementary to $\angle Y$, and $M(\angle X) = 2 M(\angle Y)$, then the measure of $\angle Y$ is
- (a) 120° (b) 60° (c) 45° (d) 30°
- 135 In the opposite figure the value of X is
- (a) 65° (b) 88° (c) 120° (d) 55°
- 136 If the perimeter of triangle is 34 in the opposite figure , then the value of X is
- (a) 14 (b) 24 (c) 12 (d) 10
- 137 If $\frac{14}{x} = \frac{y}{7}$, then $xy = \dots\dots\dots$
- (a) 14 (b) 80 (c) 98 (d) 7
- 138 If 13,500 tourists represent 12 % of a tourists group , then the number of tourists in the entire group is tourists.
- (a) 100,250 (b) 110,200 (c) 112,500 (d) 13,500
- 139 Hesham packed 100 cardboard boxes in 2.5 hours. It would take Hesham Hours to pack 160 boxes , working at the same rate.
- (a) 2 (b) 4 (c) 8 (d) 9



Find the value of X



140

☐ a 85° ☐ b 45° ☐ c 130° ☐ d 180°

141

 $-2 - (-3) = \dots\dots\dots$ ☐ a -1 ☐ b 1 ☐ c -5 ☐ d 5

142

 $24\frac{1}{3}\% + \dots\dots\dots = 0.\bar{3}$ ☐ a 8% ☐ b 9% ☐ c 10% ☐ d 11%

143

The value of the expression $(4x - 10)$ at $x = -1$ equals☐ a 10 ☐ b -14 ☐ c 14 ☐ d -10

144

If Omar has x ten-pound banknotes in addition to 1 one-hundred-pound banknotes, and the total amount of Omar's money is 330 pounds, then $x = \dots\dots\dots$ ☐ a 20 ☐ b 30 ☐ c 33 ☐ d 23

145

A parallelogram with a base length of 12 cm, its corresponding height is $(3x-1)$ cm and its area is 60 squared centimeters, then $x = \dots\dots\dots$ ☐ a 2 ☐ b 4 ☐ c 6 ☐ d 8

146

 $5x - (-4x) = \dots\dots\dots$ ☐ a $-x$ ☐ b x ☐ c $-9x$ ☐ d $9x$

147

180 pounds are to be divided between two persons in the ratio 7 : 5, the larger share is

☐ a 135 pounds☐ b 105 pounds☐ c 75 pounds☐ d 60 pounds

148

If the arithmetic mean of five integers is 14, the median is 15, and the mode is 11, then the greatest of these integers is

☐ a 19 ☐ b 14 ☐ c 17 ☐ d 18

149

The simplest form of the expression $a + a + b + a + b$ is☐ a $3a + 2b$ ☐ b $3a + b + b$ ☐ c $a^3 + 2b$ ☐ d $a^3 + b^2$

150

If $A = \{1, 3, 5\}$ and $B = \{2, 3, 4\}$, then $A \cap B = \dots\dots\dots$ ☐ a $\{1\}$ ☐ b $\{2\}$ ☐ c $\{1, 2\}$ ☐ d $\{3\}$

151

The measure of each interior angle in a regular octagon is

☐ a 144° ☐ b 135° ☐ c 180° ☐ d 120°

152

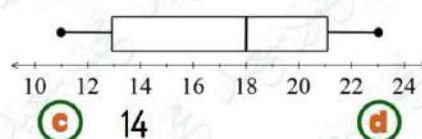
From the following table, the measure of central angle corresponding to the coffee sector is

Drink	Coffee	Tea	juices
people	150	350	100

☐ a 45° ☐ b 90° ☐ c 120° ☐ d 150°

153

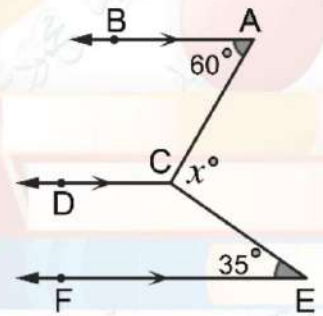
From the adjacent box plot, the range is

☐ a 10 ☐ b 12 ☐ c 14 ☐ d 16 

Question 02

Answer the following questions

- 1 If $a = 3$, $b = -3$ and $c = 2$, find the result of each of the following :
- $2a + b + c$
 - $3b + 5c$
 - $ab - 5c$
- 1) $(2 \times 3) + (-3) + 2 = 5$
 2) $(-3 \times 3) + (5 \times 2) = 1$
 3) $(3 \times -3) - (5 \times 2) = -19$
- 2 A picture of a butterfly with a real length of 2.5 cm and a length in the picture of 2 metres, find the scale of the drawing?
- Scale of drawing = $\frac{\text{The length in the drawing}}{\text{The real length}} = \frac{2 \text{ m}}{2.5 \text{ cm}} = \frac{200 \text{ cm}}{2.5 \text{ cm}} = \frac{80}{1} = 80 : 1$
- 3 A factory produces 1500 lamps in 3 hours, calculate the production rate of the factory in two hours?
- $\frac{1500}{3} = \frac{x}{2}$, $x = \frac{1500 \times 2}{3}$, $x = 1,000$ lamps
- 4 A school with $(8X + 15)$ girls and $(7X - 10)$ boys, write a mathematical expression that shows how many more girls there are than boys in this school.
- $(8X + 15) - (7X - 10) =$
 $(8X + 15) + (-7X + 10) =$
 $(8X + (-7X)) + (10 + 15) =$
 $= X + 25$
- 5 With proof find the value of X in the opposite figure :
- $\therefore AB \parallel CD$, AC is a transversal.
 $m \angle ACD + m \angle A = 180^\circ$
 (two interior angles and on one side of the transversal)
 $\therefore m \angle ACD = 180^\circ - 60^\circ = 120^\circ$
 $CD \parallel EF$, CE is a transversal
 $\therefore m \angle DCE + m \angle E = 180^\circ$
 (two interior angles and on one side of the transversal)
 $\therefore m \angle DCE = 180^\circ - 35^\circ = 145^\circ$
 *The sum of the measures of the accumulative angles at a point C = 360°
 $\therefore m \angle ACE = 360^\circ - (120^\circ + 145^\circ) = 95^\circ$
 $\therefore x = 95^\circ$
- 6 Ahmed bought 10 apples for 70 pounds, how many apples of the same type can he buy for 98 pounds?
- $\frac{10}{70} = \frac{x}{98}$, $x = \frac{10 \times 98}{70}$, $x = 14$ apples



- 7 If the number of students in a school is 650 and the ratio between the number of boys to the number of girls is 6 : 7, calculate the increase in the number of girls compared to the number of boys?

Boys : girls : sum

6 : 5 : 13

X : Y : 650

$$\text{Boys} = \frac{6 \times 650}{13} = 300$$

$$\text{Girls} = \frac{5 \times 650}{13} = 250$$

The increase in the number of girls = $300 - 250 = 50$ girls

- 9 Find the measures of the numbered angles in the opposite figure :

$$m\angle 3 = 60^\circ \text{ ,, } m\angle 2 = 120^\circ \text{ ,, } m\angle 5 = 60^\circ \text{ ,, } m\angle 4 = 120^\circ$$

- 10 In the opposite figure , prove that $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$:

$$m\angle CRM = m\angle BMR = 120^\circ \because$$

[alternating interior angles]

$$\therefore \overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$$

- 11 A football field is rectangular shape, and its length is 15 meters less than twice its width. If its perimeter is 330 meters , find the dimensions of the field.

Let the width of the rectangle be x

$$\text{So, the length} = 2x - 15$$

$$\because \text{the perimeter} = 330 \text{ m}$$

$$\therefore 2x + 2(2x - 15) = 330$$

$$2x + 4x - 30 = 330$$

$$6x - 30 = 330$$

$$\therefore x = 60$$

$$\therefore \text{the width} = 60 \text{ m , the length} = 2 \times 60 - 15 = 105 \text{ m}$$

- 12 If the price of a mobile phone in store is 12,750 LE and its price was reduced by 8 % , what will be the price after the discount ?

The percentage of the price of the mobile phone after discount =

$$100 \% - 8 \% = 92 \%$$

The price of the mobile phone after discount =

$$12,750 \times 92 \% = 11,730 \text{ LE}$$

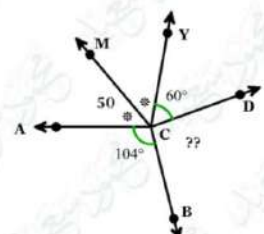
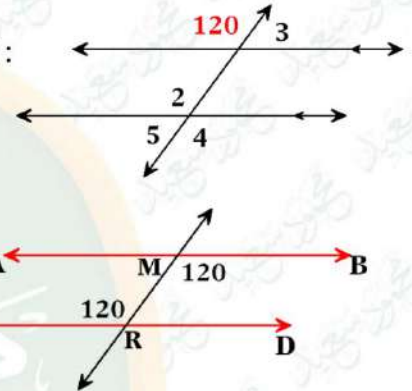
- 13 Write all the subsets of the set $B = \{ 2, 7, 9 \}$ and state their number.

$$\{ 2 \} \{ 7 \} \{ 9 \} \{ 2, 7 \} \{ 2, 9 \} \{ 7, 9 \} \{ 2, 7, 9 \} \emptyset$$

- 14 In the opposite figure, find $M (\angle BCD)$:

$$m\angle ACM = m\angle MCY = 50^\circ$$

$$m\angle BCD = 360^\circ - (50 + 50 + 60 + 104) = 96^\circ$$



- 15 Add the two algebraic expressions : $3x + 2y$ and $5y - 6x + 2$, then find the numerical value of the result when $x = 3$, $y = -1$

$$3x + 2y$$

$$-6x + 5y + 2$$

$$-3x + 7y + 2$$

$$\text{The numerical value} = -3 \times 3 + 7 \times (-1) + 2 = -14$$

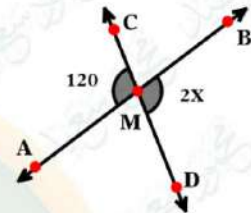
- 16 If $\overrightarrow{CD} \cap \overrightarrow{AB} = \{M\}$, Find the value of X

$$\overrightarrow{AB} \cap \overrightarrow{CD} = \{M\}$$

$$\therefore m \angle CMA = m \angle BMD \text{ (V.O.A)}$$

$$\therefore 2x = 120 \quad \therefore x = \frac{120}{2} = 60^\circ$$

Find with proof the value of X ?



- 17 $\because AB = BC = CD = AD$, $m \angle B = 90^\circ$

$\therefore ABCD$ is a square

$\therefore AC$ is a diagonal

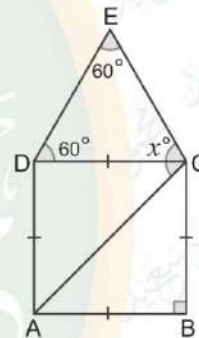
$$\therefore m \angle ACD = 45^\circ$$

In $\triangle CDE$:

$$\therefore m \angle E = m \angle D = 60^\circ$$

$$\therefore m \angle ECD = 180^\circ - (60^\circ + 60^\circ) = 60^\circ$$

$$\therefore m \angle ECA = X = 45^\circ + 60^\circ = 105^\circ$$



- 18 Find with proof the value of X ?

$\therefore \angle CBM$ is an exterior angle

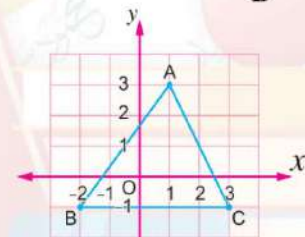
$$\therefore m \angle CMB = 56 + 104 = 160^\circ$$



- 19 In the opposite figure find the coordinates of A, C and B and find the area of triangle?

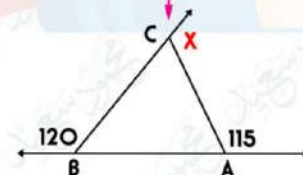
$$A(1,3) \quad B(-2,-1) \quad C(3,-1)$$

$$\text{The area} = \frac{1}{2} \times 5 \times 4 = 10 \text{ square units}$$



- 20 In the opposite figure find the value of X ?

$$X = 65 + 60 = 125^\circ$$



- 21 What is the decrease of : $7a - 2b + 5c$ than $(3b - 5a + c)$?

$$3b - 5a + c - (7a - 2b + 5c) =$$

$$3b - 5a + c - 7a + 2b - 5c =$$

$$3b + 2b - 5a - 7a + c - 5c =$$

$$5b - 12a - 4c$$



- 22** An object on Earth weighs 90 Newton, so if you know that its weight on the Moon is 15 Newton, how much does another body weigh on the Moon if its weight on Earth is 60 Newton?

$$\frac{90}{15} = \frac{60}{x} \quad x = \frac{60 \times 15}{90} = 10$$

- 23** If 100 grams of chocolate gives 300 calories, find the number of calories in 30 grams of the same type of chocolate?

$$\frac{100}{300} = \frac{30}{x} \quad x = \frac{300 \times 30}{100} = 90$$

- 24** Find the value of A and B in the sets $\{4, 3, 7, A\} = \{5, B, 3, 7\}$?

$$A = \{5\}, B = \{4\}$$

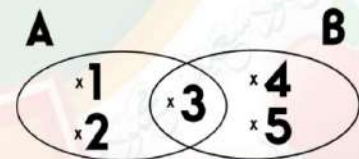
- 25** If the price of fridge last year was 6,250 LE, and its price increased this year to 7,000 LE, find the rate of increase?

$$\text{The difference} = 7000 - 6250 = 750 \text{ LE}$$

$$\text{The rate of increase} = \frac{750 \times 100}{6250} = 12 \%$$

- 26** From the given shape , determine :

- 4) A, B
5) $A \cup B$
6) $A \cap B$



- 1) $A = \{1, 2, 3\}, B = \{3, 4, 5\}$
2) $\{1, 2, 3, 4, 5\}$
3) $\{3\}$

- 27** Saif bought a car for 100,000 pounds and then sold it with a gain of 5% of the purchase price, calculate the selling price of Saif for the car after the increase ?

$$\text{The selling price} = \frac{105 \times 100,000}{100} = 105,000 \text{ pounds}$$

- 28** If $Y = \frac{4}{9}$, $X = \frac{-2}{9}$, then find $2X + Y$ in simplest form.

$$\left[2 \times \frac{-2}{9} \right] + \frac{4}{9} = \frac{-4}{9} + \frac{4}{9} = 0$$



29 If $A = 3$, $B = [-3]$, $C = 2$, then find :

3) $(A \times B) \div C$

4) $(B \div C) \times A$

1) $(3 \times -4) \div 2 = -12 \div 2 = -6$

2) $(-4 \div 2) \times 3 = -6$

30 If the ratio between the side lengths of a triangle with a perimeter of 150 cm is 3 : 5 : 7, calculate the length of its largest side?

1st : 2nd : 3rd : sum

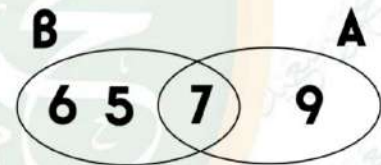
3 : 5 : 7 : 15

a : b : c : 150

the length of the largest side = $\frac{7 \times 150}{15} = 70$

31 Represent in a Venn diagram :

$A = \{7, 9\}$, $B = \{7, 6, 5\}$



32 A person distributed an amount of money to three people, so he gives the first $(7 + x)$ pounds, and give the second $(1 + x3)$ pounds, and the third, $(2 - x2)$ pounds, write in the simplest form the algebraic amount that expresses the amount that was distributed, and if $x = 10$, what is the value of this amount ?

$(X+7) + (3X+1) + (2X-2) = 6X+6 = (6 \times 10) + 6 = 66 \text{ Pounds}$

33 A liquid whose temperature was 20 degrees below zero , after heating its temperature raised by 8 degrees Celsius, calculate the temperature of the liquid after heating?

$-20 + 8 = -12$

34 Use the properties of addition in Z to find: $17 + 32 + [-17]$

$17 + [-17] + 32$ (Commutative property)

$(17 + [-17]) + 32$ (Associative property)

$0 + 32$ (Additive inverse)

32 (Additive identity)

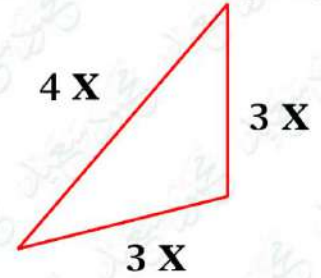


35

Find the mathematical expression representing the perimeter of the opposite triangle in the simplest form , then find its numerical value at $X = 2$

The mathematical expression = $4x + 3x + 3x$

The perimeter = $10 \times 2 = 20$



36

Four people bought tickets to enter the Egyptian Museum in Cairo, and they also bought souvenirs for 500 pounds, if the total cost is 620 pounds, write an equation that represents this situation, what is the price of one ticket?

$$4x + 500 = 620 \quad \therefore 4x = 620 - 500 \quad \therefore 4x = 120 \quad \therefore x = \frac{120}{4} \quad \therefore x = 30$$

The price of one ticket = 30 pounds

37

From the opposite figure find the value of X ?

∴ The polygon is a hexagon.

$$\therefore (5X + 9)^\circ + (7X - 19)^\circ + (7X - 23)^\circ$$

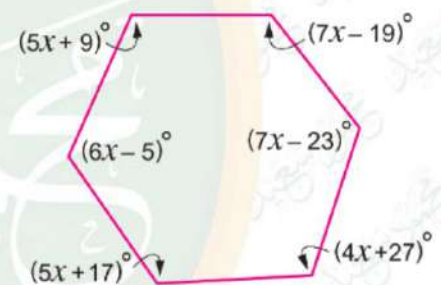
$$+ (4X + 27)^\circ + (5X + 17)^\circ$$

$$+ (6X - 5)^\circ = 720^\circ$$

$$\therefore 34x + 6^\circ = 720^\circ$$

$$\therefore 34X = 720^\circ - 6^\circ = 714^\circ$$

$$\therefore x = 714^\circ \div 34 = 21^\circ$$



38

The opposite bar graph shows the distribution of students in summer activities according to their preferences. Fill in the table below And then represent this data using a pie chart :

Activity	Basketball	Foot ball	handball
percentages	$\frac{70}{200} \times 100\% = 35\%$	$\frac{80}{200} \times 100\% = 40\%$	$\frac{50}{200} \times 100\% = 25\%$

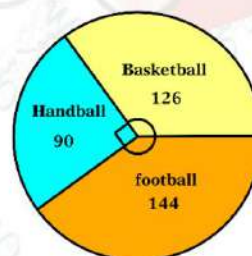
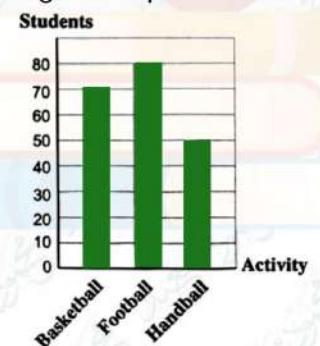
The number of total students = $70 + 80 + 50 = 200$

The measure of the central angle of each sector

$$\text{Basketball} = \frac{35}{100} \times 360^\circ = 126^\circ$$

$$\text{Football} = \frac{40}{100} \times 360^\circ = 144^\circ$$

$$\text{Handball} = \frac{25}{100} \times 360^\circ = 90^\circ$$



39

The opposite table represents the number of votes each of Khaled , Anas and Hamza gained in the classroom election. Use a pie chart to represent this data :

Number of votes = $8 + 12 + 10 = 30$ votes

Student name	khaled	Anas	Hamza
Number of votes	8	12	10

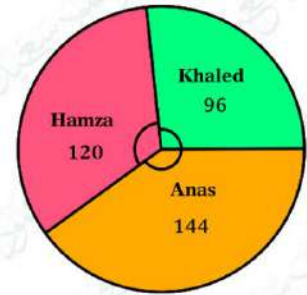


The measure of the central angle of Khaled = $\frac{8}{30} \times 360^\circ = 96^\circ$

The measure of the central angle of Anas =

$$\frac{12}{30} \times 360^\circ = 144^\circ$$

The measure of the central angle of Hamza = $\frac{10}{30} \times 360^\circ = 120^\circ$



40

From the opposite figure find $m(\angle ABC)$?

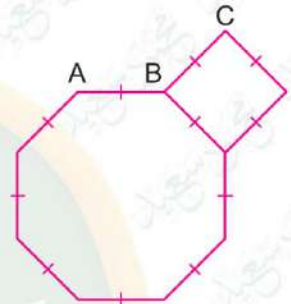
∴ The measure of interior angle of square = 90°

The measure of interior angle of regular octagon

$$\frac{180 \times 6}{8} = 135^\circ$$

$$\therefore m(\angle ABC) = 360^\circ - (90^\circ + 135^\circ) = 135^\circ$$

(The accumulative angles at a point B)



41

Find the $m(\angle H)$?

∴ ABCDEF is a hexagon.

The measure of any interior angle = $\frac{180 \times 4}{6} = 120^\circ$

$$\therefore m(\angle ABC) = 120^\circ$$

$$\therefore m(\angle ABC) + m(\angle CBG) = 180^\circ$$

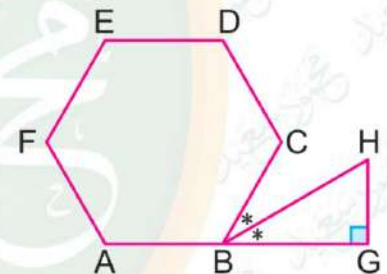
(two supplementary adjacent angles)

$$\therefore m(\angle CBG) = 180^\circ - 120^\circ = 60^\circ$$

$$\therefore m(\angle CBH) = m(\angle HBG)$$

$$\therefore m(\angle HBG) = 60^\circ \div 2 = 30^\circ$$

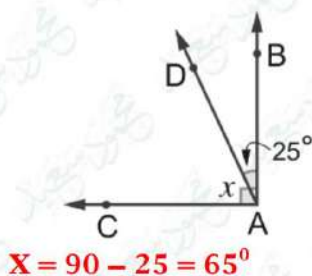
$$\text{In } \triangle BGH : \therefore m(\angle H) = 180^\circ - (90^\circ + 30^\circ) = 60^\circ$$



Question 03

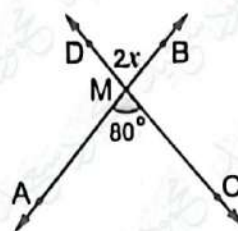
Find the value of x

1



$$x = 90 - 25 = 65^\circ$$

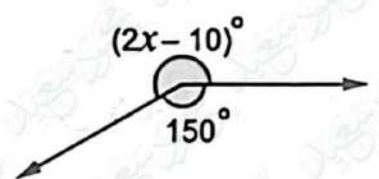
2



$$2x = 80$$

$$x = \frac{80}{2} = 40^\circ$$

3



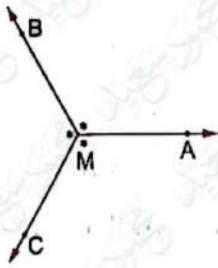
$$2x - 10 = 210,$$

$$2x = 220$$

$$x = \frac{220}{2} = 110^\circ$$

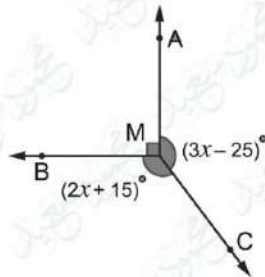


4



$$M = \frac{360}{3} = 120^\circ$$

5



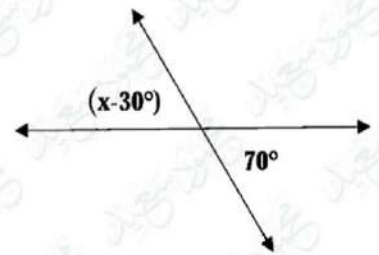
$$2x+15 + 3x - 25 + 90 = 360$$

$$5x - 80 = 360,$$

$$5x = 280$$

$$X = \frac{280}{5} = 56^\circ$$

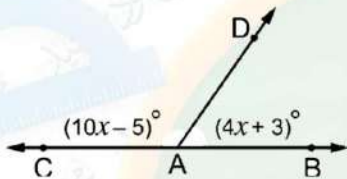
6



$$x-30 = 70,$$

$$x = 100^\circ$$

7

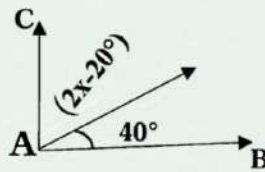


$$10x - 5 + 4x + 3 = 180^\circ$$

$$14x - 2 = 180^\circ, 14x = 182$$

$$X = \frac{182}{14} = 13^\circ$$

8

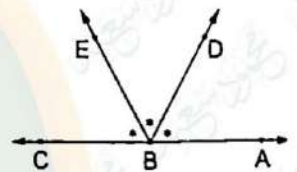


$$2x-20 = 90-40,$$

$$2x = 70$$

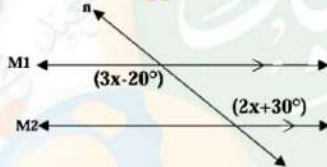
$$X = \frac{70}{2} = 35^\circ$$

9



$$X = \frac{180}{3} = 60^\circ$$

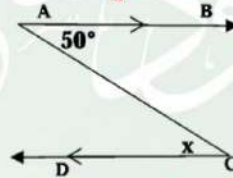
10



$$3x - 20 = 2x + 30$$

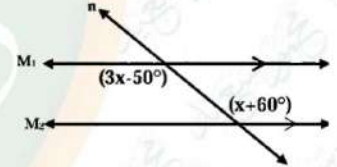
$$X = 50^\circ$$

11



$$X = 50^\circ$$

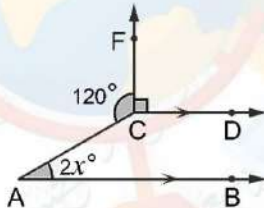
12



$$3x - 50 = x + 60, 2x = 110$$

$$X = \frac{110}{2} = 55^\circ$$

13

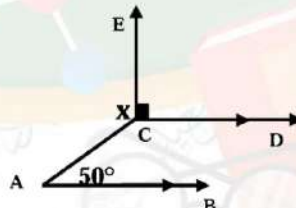


$$m\angle C = 360 - (90 + 120) = 150^\circ$$

$$2x = 180 - 50 = 30$$

$$X = \frac{30}{2} = 15^\circ$$

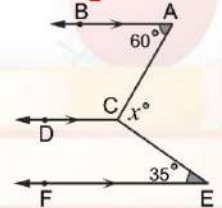
14



$$m\angle C = 180 - 50 = 130^\circ$$

$$m\angle x = 360 - (130 + 90) = 140^\circ$$

15

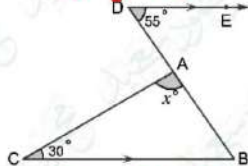


$$m\angle ACD = 180 - 60 = 120^\circ$$

$$m\angle DCE = 180 - 35 = 145^\circ$$

$$m\angle x = 360 - (145 + 120) = 95^\circ$$

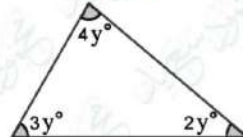
16



$$m\angle D = m\angle b = 55^\circ$$

$$m\angle x = 180 - (30 + 55) = 95^\circ$$

17

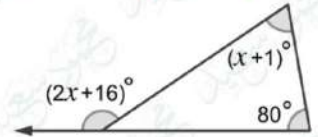


$$3y + 2y + 4y = 180^\circ,$$

$$9y = 180^\circ$$

$$Y = \frac{180}{9} = 20^\circ$$

18

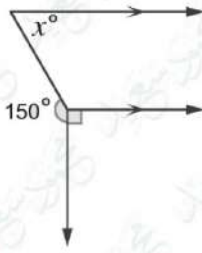


$$2x + 16 = x + 1 + 80$$

$$X = 81 - 16, x = 65^\circ$$



19

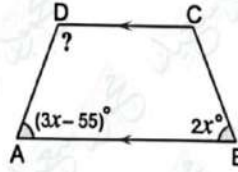


$$360^\circ - (150^\circ + 90^\circ) = 120^\circ$$

$$180^\circ - 120^\circ = 60^\circ$$

20

If $M(\angle A) = M(\angle B)$



$$3x - 55^\circ = 2x, 3x - 2x = 55^\circ,$$

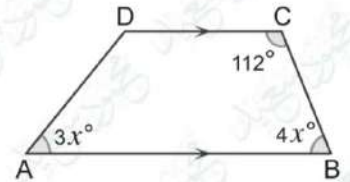
$$x = 55^\circ$$

$$M(\angle A) = 3 \times 55^\circ - 55^\circ$$

$$= 165 - 55 = 110$$

$$M(\angle D) = 180^\circ - 110^\circ = 70^\circ$$

21



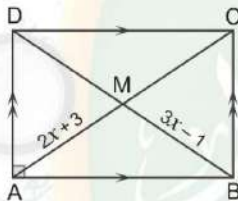
$$4x + 112^\circ = 180^\circ$$

$$4x = 68^\circ, x = 17^\circ, M(D) =$$

$$360 - (51 + 68 + 112) = 129^\circ$$

22

In the opposite rectangle find the value of X



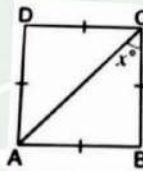
$$3x - 1 = 2x + 3$$

$$3x - 2x = 3 + 1$$

$$x = 4^\circ$$

23

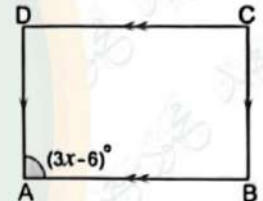
In the opposite square find the value of X



$$x = 45^\circ$$

24

In the opposite rectangle find the value of X



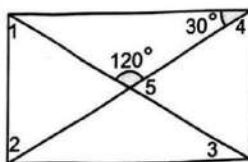
$$3x - 6 = 90^\circ$$

$$3x = 90 + 6$$

$$x = 32$$

25

Find the measure of the numbered angles :



Rectangle

$$M(\angle 1) = 60^\circ$$

$$M(\angle 2) = 60^\circ$$

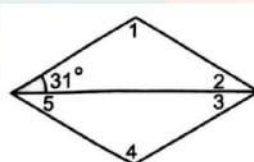
$$M(\angle 3) = 30^\circ$$

$$M(\angle 4) = 60^\circ$$

$$M(\angle 5) = 60^\circ$$

26

Find the measure of the numbered angles :



$$M(\angle 1) = 118^\circ$$

$$M(\angle 2) = 31^\circ$$

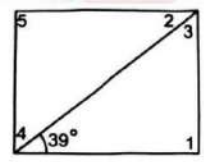
$$M(\angle 3) = 31^\circ$$

$$M(\angle 4) = 118^\circ$$

$$M(\angle 5) = 31^\circ$$

27

Find the measure of the numbered angles :



Rectangle

$$M(\angle 1) = 90^\circ$$

$$M(\angle 2) = 39^\circ$$

$$M(\angle 3) = 51^\circ$$

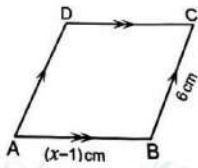
$$M(\angle 4) = 51^\circ$$

$$M(\angle 5) = 90^\circ$$



28

In a Rhombus :



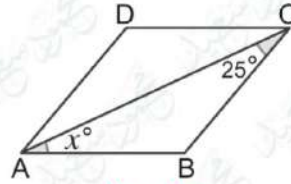
$$X - 1 = 6$$

$$X = 6 + 1$$

$$X = 7$$

29

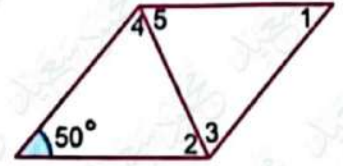
In a Rhombus :



$$X = 25^\circ$$

30

In a Rhombus :



$$M(\angle 1) = 50^\circ$$

$$M(\angle 2) = 65^\circ$$

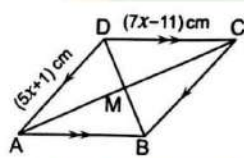
$$M(\angle 3) = 65^\circ$$

$$M(\angle 4) = 65^\circ$$

$$M(\angle 5) = 65^\circ$$

31

In a Rhombus :



$$7x - 11 = 5x + 1$$

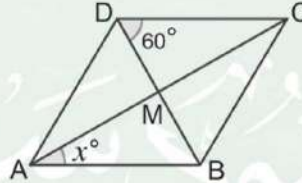
$$7x - 5x = 1 + 11$$

$$2x = 12$$

$$X = 6$$

32

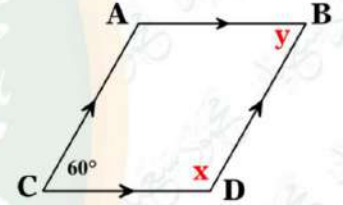
In a Rhombus :



$$X = 90 - 60 = 30^\circ$$

33

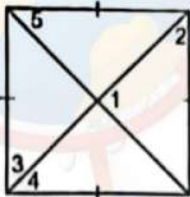
Find the value of X and Y



$$Y = 60^\circ$$

$$x = 180 - 60 = 120^\circ$$

34



$$M(\angle 1) = 90^\circ$$

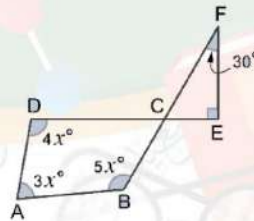
$$M(\angle 2) = 45^\circ$$

$$M(\angle 3) = 45^\circ$$

$$M(\angle 4) = 45^\circ$$

$$M(\angle 5) = 45^\circ$$

35



$$180^\circ - (90^\circ + 30^\circ) = 60^\circ$$

$$4x^\circ + 3x^\circ + 5x^\circ + 60^\circ = 360^\circ$$

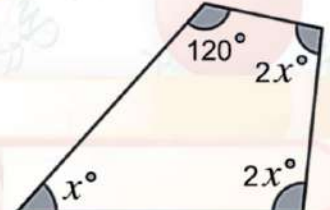
$$12x^\circ + 60^\circ = 360^\circ$$

$$12x = 360^\circ - 60^\circ$$

$$12x = 300^\circ$$

$$X = 25^\circ$$

36



$$2x^\circ + 2x^\circ + x^\circ + 120^\circ = 360^\circ$$

$$5x = 360^\circ - 120^\circ$$

$$5x = 240^\circ$$

$$X = 48^\circ$$

تم بحمد الله ،



المراجعة رقم 2

Question 1

Choose the correct answer:

1. Which of the following is equal to - 5?

- (a) $0 \div (-5)$ (b) $1 \div (-5)$ (c) $-25 \div (-5)$ (d) $-25 \div 5$

2. If the price of an item decreased from 1,500 LE to 1,200 LE, what is the discount rate ?

- (a) 3% (b) 15% (c) 20% (d) 30%

3. If $x < 0$ and $y > 0$, in which quadrant does the point $(x, -y)$ lie?

- (a) First (b) Second (c) Third (d) Fourth

4. Which of the following equations has no solution in Z?

- (a) $6x = 12$ (b) $6x = 15$ (c) $6x = 18$ (d) $6x = 24$

5. Magdy can run 75 meters in 25 seconds. If he maintained his speed, which proportion you can use to find the time (X) he needs to run 300 meters ?

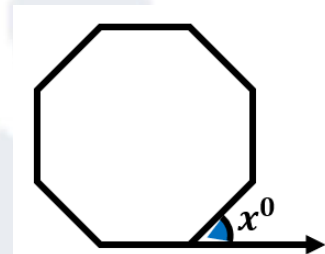
- (a) $\frac{75}{25} = \frac{x}{300}$ (b) $\frac{75}{25} = \frac{300}{x}$ (c) $\frac{25}{x} = \frac{300}{75}$ (d) $\frac{75}{x} = \frac{300}{25}$

6. What is the type of the angle that supplements an acute angle ?

- (a) Acute (b) Obtuse (c) Straight (d) Reflex

7. In the opposite figure: The shape is a regular octagon. What is the value of X?

- (a) 35°
(b) 45°
(c) 75°
(d) 135°



8. If the sum of two angles in a triangle is 130 deg , what is the measure of the third angle?

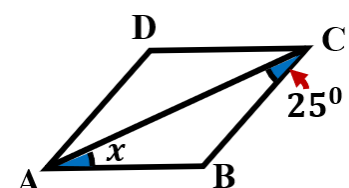
- (a) 20° (b) 30° (c) 50° (d) 60°

9. Which inequality expresses that Bassem requires a minimum of 10 gigabytes per month to accomplish his work online ?

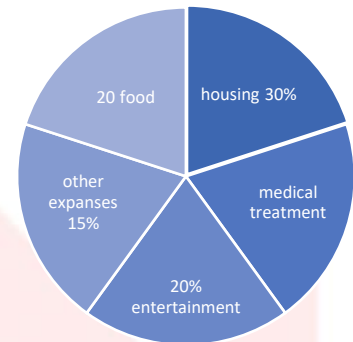
- (a) $x < 10$ (b) $x > 10$ (c) $x \leq 10$ (d) $x \geq 10$

10. In the opposite figure ABCD is a rhombus. What is the value of X?

- (a) 25°
(b) 50°
(c) 100°
(d) 130°



11. The opposite figure shows a pie chart for the expenditure of a family whose monthly income is 10,000 LE. The monthly medical treatment expenses are.....LE



- (a) 1,500
(b) 2,000
(c) 2,500
(d) 3,000

12. The result of adding the two expressions: $-3y - x - 4z$, $x + 3y - 4z$ is

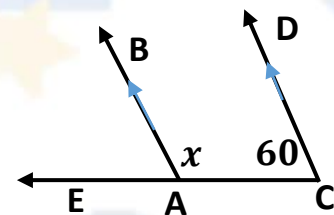
- (a) zero (b) $-8z$ (c) $8z$ (d) $2x - 6y + 8z$

13. If $\{4,5,7\} \subset \{3,x,4,y,8\}$, then what is the value of $x + y$?

- (a) 5 (b) 7 (c) 8 (d) 12

14. In the opposite figure: What is the value of X?

- (a) 150°
(b) 120°
(c) 110°
(d) 60°



15. Which of the following operations has the same result $2\frac{2}{3} \div (-1\frac{3}{7})$

- (a) $2\frac{2}{3} \times (-1\frac{7}{3})$ (b) $2\frac{2}{3} + 1\frac{3}{7}$
(c) $-2\frac{2}{3} \times \frac{7}{10}$ (d) $-1\frac{3}{7} + 2\frac{2}{3}$

16. An isosceles triangle has two sides with lengths of 4 cm and 8 cm. What is the length of the third side?

- (a) 4cm (b) 5cm (c) 6cm (d) 8cm

17. If $\frac{1}{3} = \frac{2}{b+1}$, then what is the value of b?

- (a) 2 (b) 3 (c) 4 (d) 5

18. What is the mathematical expression that represents subtracting (-2) from X?

- (a) $x - 2$ (b) $2 - x$ (c) $-2 - x$ (d) $x + 2$

19. If angles A and B are complementary and $m(\angle A) = 40^\circ$ what is the measure of $\angle B$?

- (a) 40° (b) 50° (c) 90° (d) 140°

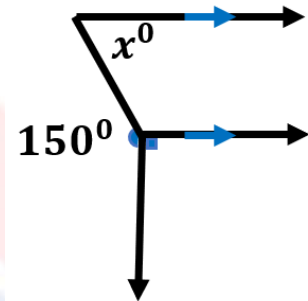
20. If the point (4,3) is the midpoint of overline \overline{AB} , where B (2, y) and A (X, 5), what is the value of (x + y)

- (a) 3 (b) 5 (c) 7 (d) 9

21. In the opposite

figure: $x = \dots\dots\dots$

- (a) 60°
(b) 90°
(c) 120°
(d) 50°



22. Which of the following represent the solution set: $2(X-5) = 0$ in \mathbb{Q} ?

- (a) 0 (b) 5 (c) -5 (d) 10

23. If the actual length is 90 meters and the scale is 1: 10,000, what is the length in the drawing in centimeters ?

- (a) 0.09cm (b) 90cm (c) 9cm (d) 0.9cm

24. Which of the following sets of quadrilaterals have all their sides are equal in length ?

- (a) {Square, Rectangle} (b) {Trapezoid, Rhombus}
(c) {Square, Rhombus} (d) {Rectangle, Rhombus}

25. If $A = \{8, 9, 6\}$, $B = \{2, 6, 7\}$ What is the set that represents $A \cap B$?

- (a) {6} (b) {2, 7}
(c) {8, 9} (d) {2, 6, 7, 8, 9}

26. The additive inverse of the expression: $3x - 2y + 8$ is

- (a) $-3x - 2y + 8$ (b) $-3x + 2y + 8$
(c) $-3x + 2y - 8$ (d) $3x + 2y - 8$

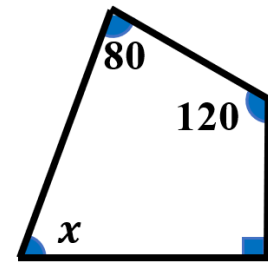
27. When representing the following table with a pie chart, what is the measure of the central angle for the coffee sector?

- (a) 45°
(b) 90°
(c) 120°
(d) 150°

Drink	Juice sector	Tea	Juice
People	100	350	150

In the opposite figure: What is the value of X?

- (a) 70^0
- (b) 80^0
- (c) 90^0
- (d) 120^0



28. The value of the expression: $(5x - 8)$ when $x = -1$ is

- (a) -13
- (b) -3
- (c) 3
- (d) 13

29. If $X : 36 = 25:20$, then what is the value of X?

- (a) 14
- (b) 28.8
- (c) 45
- (d) 60

30. If $x \notin \{2, 5, 7\}$, so which of the following could it be equal to X ?

- (a) 1
- (b) 2
- (c) 5
- (d) 7

31. What is the type of the angle that complements a right angle ?

- (a) Acute
- (b) Obtuse
- (c) Straight
- (d) Zero

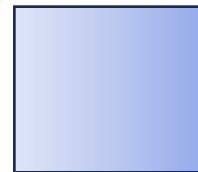
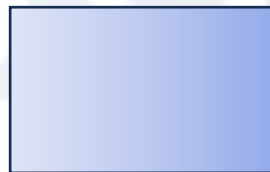
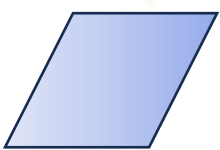
32. What is the multiplicative inverse of $-3\frac{1}{2}$?

- (a) $-\frac{7}{2}$
- (b) $-2\frac{1}{3}$
- (c) $-\frac{2}{7}$
- (d) $\frac{2}{7}$

33. Which of the following scales is equivalent to "every 1 cm in the drawing represents 6.5 km in reality ?

- (a) $1: 6, 500, 000$
- (b) $1: 6.5$
- (c) $1: 650, 000$
- (d) $1: 6, 500$

34. Which of the following shapes doesn't have an axis of symmetry?



- (a)
- (b)
- (c)
- (d)

35. The solution set for: $13+5X=3$ in N is

- (a) $\{-2\}$
- (b) $\{-1\}$
- (c) $\{2\}$
- (d) \emptyset

36. What is the point that represents the projection of the point $(-3, 5)$ on the X-axis?

- (a) $(0, 5)$
- (b) $(-3, 0)$
- (c) $(3, -5)$
- (d) $(-3, 5)$

37. Which of the following numbers cannot be the lengths of the sides of a triangle ?

- (a) 4 cm, 7cm, 4 cm (b) 3 cm, 4cm, 7cm
(c) 7 cm, 7cm, 7cm (d) 9 cm, 7cm, 5cm

38. $a + a + a + a = \dots\dots\dots$

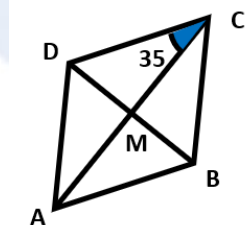
- (a) $4a^4$ (b) a^4 (c) $4 + a$ (d) $4a$

39. If the arithmetic mean of a student's grades in five exams is 94, and their grades in the first four exams are 91, 94, 92, and 97, what is their grade in the fifth exam?

- (a) 90 (b) 93 (c) 96 (d) 98

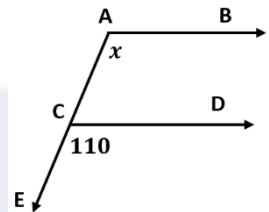
40. In the opposite figure : What is the measure of $\angle CBD$?

- (a) 35°
(b) 45°
(c) 55°
(d) 65°



41. In the opposite figure: What is the value of X?

- (a) 70°
(b) 90°
(c) 110°
(d) 130°



42. If $\frac{9}{k+1} = \frac{3}{5}$, what is the value of k?

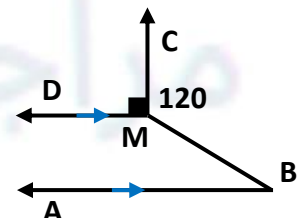
- (a) 13 (b) 14 (c) 15 (d) 16

43. What is the solution set of the equation: $4(2X + 7) = 12$ in \mathbb{N} ?

- (a) $\{2\}$ (b) $\{-2\}$ (c) $\{-4\}$ (d) \emptyset

44. In the figure below: $\overrightarrow{MC} \perp \overrightarrow{MD}$, $\overrightarrow{BA} \parallel \overrightarrow{MD}$ and $m(\angle BMC) = 120^\circ$ What is the measure of $\angle B$

- (a) 20°
(b) 30°
(c) 50°
(d) 70°



45. If a map scale is 1: 200,000 and the distance between two points on the map is 3.5 cm, what is the real distance between these two points in kilometers ?

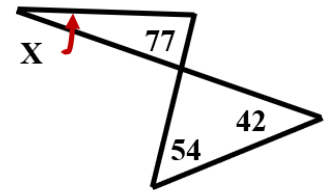
- (a) 3.5 (b) 7 (c) 8.5 (d) 700

46. $-3 - (-2) = \dots\dots\dots$

- (a) -5 (b) -1 (c) 1 (d) 5

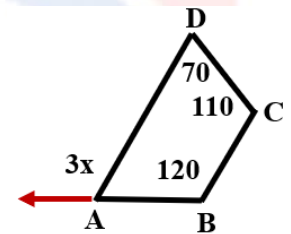
47. In the opposite figure: What is the value of X?

- (a) 19°
(b) 32°
(c) 48°
(d) 60°



48. In the opposite figure: ABCD is a quadrilateral, what is the value of X?

- (a) 40°
(b) 50°
(c) 60°
(d) 70°

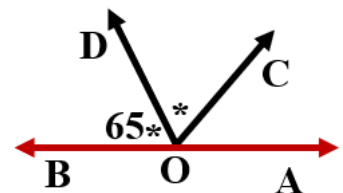


49. Which of the equations below is not equivalent to $4x + 5 = 9$?

- (a) $3x = 3$ (b) $4x + 1 = 5$ (c) $x - 1 = 5$ (d) $x + 1 = 2$

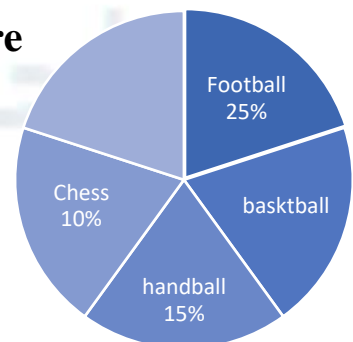
50. In the opposite figure : What is the measure of angle $\angle DOA$

- (a) 50°
(b) 80°
(c) 115°
(d) 130°



51. The opposite pie chart illustrates the distribution of students' preferences for summer activities. If there are 200 students participating in all activities, how many students chose basketball

- (a) 30
(b) 50
(c) 60
(d) 70



52. How many axes of symmetry are there in a regular hexagon ?

- (a) 2 (b) 3 (c) 4 (d) 6

53. Which of the following is equal to $8y$?

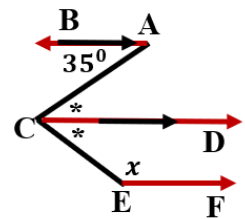
- (a) $5 + 3y$ (b) $3 + 5y$ (c) $8 + y$ (d) $3y + 5y$

54. If the price of a product is reduced from 2,000 LE to 1,700 LE, what is the discount rate?

- (a) 10% (b) 15% (c) 25% (d) 27%

55. In the opposite figure : What is the value of X?

- (a) 35°
(b) 85°
(c) 135°
(d) 145°



56. Which of the following is equivalent to the subtraction operation: $-5 - (-8)$?

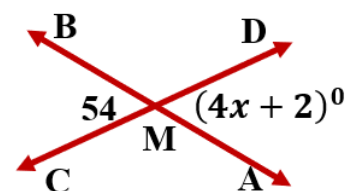
- (a) $5 - 8$ (b) $8 - 5$ (c) $8 + 5$ (d) $-5 - 8$

57. The multiplicative inverse of $(0.\overline{4} + 1\frac{2}{3})$ is.

- (a) $2\frac{1}{9}$ (b) $\frac{9}{19}$ (c) $2.\overline{1}$ (d) $\frac{19}{9}$

58. In the opposite figure : if $\overleftrightarrow{AB} \cap \overleftrightarrow{CD} = \{M\}$ what is the value of X?

- (a) 12°
(b) 13°
(c) 14°
(d) 15°

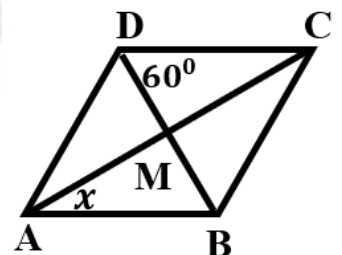


59. The arithmetic mean of the following values: 8, $2x + 1$, $x - 1$, $x + 2$ equals 7.5 What is the value of X?

- (a) 4 (b) 5 (c) 6 (d) 7

In the opposite figure: If ABCD is a rhombus, what is the value of X?

- (a) 20°
(b) 30°
(c) 50°
(d) 60°



60. How many axes of symmetry does a parallelogram have?

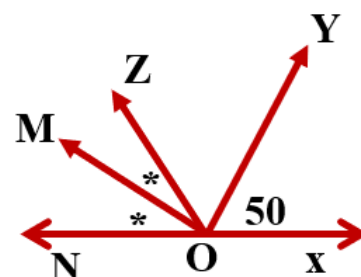
- (a) 0 (b) 1 (c) 2 (d) 4

61. In the opposite figure:

if $O \in \overleftrightarrow{XN}$

, then $m(\angle MOX) = \dots\dots\dots$

- (a) 20°
(b) 70°
(c) 140°
(d) 160°



62. The length of a fabric roll is $7\frac{1}{2}$ meters. If the fabric roll is to be divided into smaller pieces, each of length 30 centimeters, how many pieces will you get?

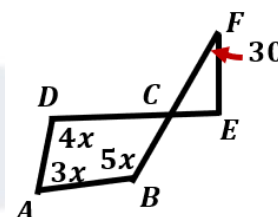
- (a) 20 (b) 22 (c) 25 (d) 28

63. What is the solutions set of the equation $3(X + 1) = X + 7$ in \mathbb{N} ?

- (a) {1} (b) {2} (c) {3} (d) \emptyset

64. In the opposite figure: What is the value of X?

- (a) 20°
(b) 25°
(c) 30°
(d) 40°



65. If $X = \{2, 3, 5, 9\}$, which of the following sets is a subset of X?

- (a) {2, 3, 4} (b) {1, 5, 9} (c) {8, 9} (d) {2, 3}

66. The opposite stem-and-leaf plot shows the average battery lives of 25 smartphones. What is the percentage of smartphones have an average battery life is less than 12 hours?

Stems	Leaves									
0	8	9								
1	0	1	1	2	2	3	4	5	6	7
2	0	2	5	6	7	8	9	9		
3	1	2								
Key	3 2 means 32 hours									

- (a) 15%
(b) 20%
(c) 25%
(d) 30%

67. If ABC is a scalene triangle in which the length of \overline{AC} is 3 cm and the length of \overline{BC} is 5 cm, how many integers could be the length of \overline{AB} ?

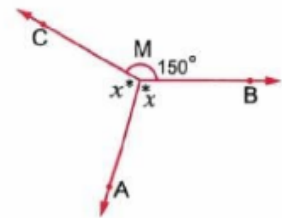
- (a) 2 (b) 3 (c) 4 (d) 5

68. What is the type of the angle supplements an acute angle ?

- (a) Acute (b) Obtuse (c) Straight (d) Reflex

69. In the opposite figure: What is the value of X?

- (a) 210^0
(b) 180^0
(c) 135^0
(d) 105^0

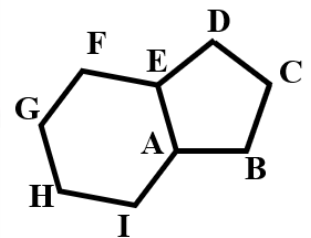


70. If ABCD is a parallelogram in which $AB = BC = CD = DA$, then the shape ABCD is

- (a) Square (b) Rectangle (c) Rhombus (d) Trapezoid

71. The opposite figure consists of a regular pentagon and a regular hexagon., then $m(\angle IAB) =$

- (a) 108^0
(b) 124^0
(c) 132^0
(d) 228^0



72. What is the projection of the point A(- 5, 3) on the X-axis ?

- (a) (-5, 0) (b) (0, 3) (c) (0, -5) (d) (3, 0)

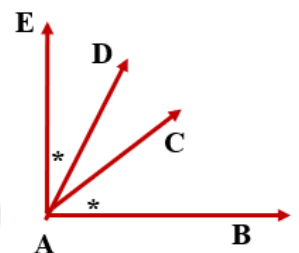
73. How many diagonals does a pentagon have?

- (a) 4 (b) 5 (c) 7 (d) 10

74. In the opposite figure: if $\overrightarrow{AB} \perp \overrightarrow{AE}$,, then $m(\angle BAD)$

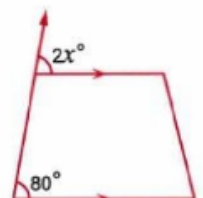
=.....

- (a) 32.5^0
(b) 57.5^0
(c) 65^0
(d) 67^0



In the opposite figure: What is the value of X?

- (a) 40^0
(b) 60^0
(c) 80^0
(d) 100^0

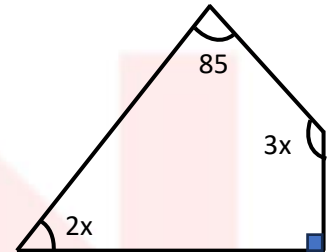


75. Which of the following sets of quadrilaterals have all their sides are equal in length ?

- (a) {Square, Rectangle} (b) {Rhombus, trapezium}
(c) {Square, Rhombus} (d) {Rectangle, Rhombus}

76. In the opposite figure: What is the value of X?

- (a) 37°
(b) 74°
(c) 85°
(d) 111°

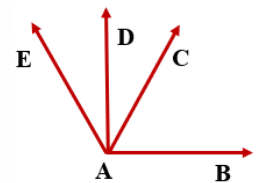


77. What is the number of axes of symmetry in a regular pentagon?

- (a) 5 (b) 6 (c) 8 (d) 10

78. The number of all adjacent angles pairs in the given figure is equal to

- (a) 2
(b) 3
(c) 4
(d) 5



79. If A (4,5) and B (-2,7), what is the midpoint of \overline{AB} ?

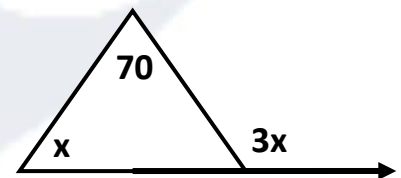
- (a) (1, 4) (b) (1, 6) (c) (3, 6) (d) (2, 12)

80. What is the measure of the interior angle of a regular hexagon?

- (a) 108° (b) 120° (c) 135° (d) 145°

81. In the following figure: What is the value of X?

- (a) 70°
(b) 140°
(c) 35°
(d) 100°

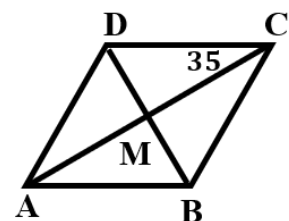


82. If A (3, 1) and B (3,-1), which of the following points is the midpoint of overline \overline{AB} ?

- (a) (0, 3) (b) (3, 0) (c) (6, 0) (d) (0, 6)

83. In the opposite figure: What is the measure of $\angle CBD$?

- (a) 35°
(b) 45°
(c) 55°
(d) 65°



84. The lengths of two sides in an isosceles triangle are 4 cm and 8 cm. What is the length of the third side?

- (a) **4cm** (b) **5cm** (c) **6cm** (d) **8cm**

85. If the original price of a mobile phone is 15,500 LE, and the discount is 7%, what is the price after discount?

- (a) **1,085L.E** (b) **10,850L.E** (c) **14,415L.E** (d) **14,600L.E**

86. What is the median of the numbers: 3,5,12,17,14,18?

- (a) **12** (b) **13** (c) **14** (d) **15**

87. If the length of the drawing is 4 cm and the real length is 12 meters, what is the scale of the drawing?

- (a) **1:3** (b) **1:30** (c) **1:300** (d) **1:3,000**

88. If Magdy's average score in four tests is 16, what score must Magdy achieve in the fifth test for his overall average across all five tests to be 18?

- (a) **24** (b) **25** (c) **26** (d) **27**

89. The simplified form of the expression $a + a + b + a + b$ is.....

- (a) **$2a + 3b$** (b) **$2b + 3a$** (c) **$a^3 + b^2$** (d) **$5ab$**

90. In the opposite stem-and-leaf plot :

The Mode =

- (a) **4 only**
(b) **5 only**
(c) **4.5**
(d) **34,45**

Stems	Leaves					
2	1	3	6	8		
3	2	4	4	8	9	
4	1	5	5	6	7	8
5	3	4	7	9		
Key	5 3 means 53					

91. Given that for a data set 2 $(\sum x) = 1,500$, $\bar{A} = 20$, what is the value of $\sum f$

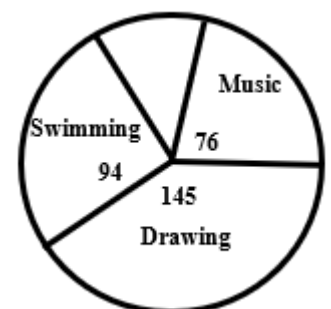
- (a) **75** (b) **150** (c) **3,000** (d) **30,000**

92. If $A = \{1, 3, 5\}$ and $B = \{2, 3, 4\}$, then $A \cap B = \dots\dots\dots$

- (a) **$\{1, 2, 3, 4, 5\}$** (b) **$\{3, 5\}$**
(c) **$\{3\}$** (d) **$\{1, 2\}$**

93. In a survey that included a group of girls about their favorite hobby, as shown in the adjacent pie chart, what hobby is practiced by approximately $\frac{1}{4}$ girls

- (a) **Drawing**
(b) **Music**
(c) **Swimming**
(d) **Reading**



94. What is the additive inverse of $\frac{16}{33}$?

- (a) $0.\overline{48}$ (b) $-0.\overline{48}$ (c) $0.\overline{16}$ (d) $-0.\overline{16}$

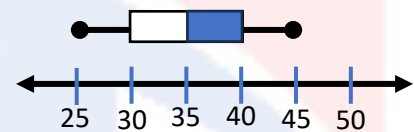
95. When representing the adjacent table with a pie chart, what is the central angle corresponding to the coffee sector?

- (a) 45^0
(b) 90^0
(c) 120^0
(d) 150^0

TYPE OF DRINK	COFFEE	TEA	JUICE
NUMBER OF PERSONS	150	350	100

96. From the adjacent box plot, the range =

- (a) 20
(b) 30
(c) 35
(d) 40



97. A dolphin dove from the water's surface to a depth of $3\frac{1}{4}$ meters , then dove an additional $2\frac{1}{2}$ meters. Which of the following does not represent the dolphin's position relative to the water's surface?

- (a) $-3\frac{1}{4} + \left(-2\frac{1}{2}\right)$ (b) $-3\frac{1}{4} + \left|-2\frac{1}{2}\right|$
(c) $-3\frac{1}{4} - 2\frac{1}{2}$ (d) $-\left(3\frac{1}{4} + 2\frac{1}{2}\right)$

98. Sara takes five tests, each with a maximum score of 100. If her scores in three of the tests are 94, 88, and 81, what is the minimum score she can achieve in one of the remaining two tests to obtain an average of 83 in all five tests?

- (a) 42 (b) 52 (c) 62 (d) 76

99. If the arithmetic mean of the lengths of the sides of a triangle is 8 cm, what is the perimeter of the triangle ?

- (a) 8 (b) 15 (c) 18 (d) 24

100. If the mode of the following: $a + 2, +1, +3, + 2$ equals 12, what is the value of a?

- (a) 2 (b) 6 (c) 10 (d) 12

101. In the opposite figure:

What is the median =

- (a) 3.7
- (b) 7
- (c) 7.3
- (d) 37

Stems		Leaves			
2	0	2	3		
3	4	6	6	8	
4	5	7	8		
5	2	9			
Key		4 5 means 4.5			

102. Which of the following graphs does not represent actual data values?

- (a) Bar graph
- (b) Line graph
- (c) Histogram
- (d) Stem-and-leaf plot

103. The opposite pie chart represents the favourite sport of 2,000 students in a school How many students prefer football?

- (a) 500
- (b) 700
- (c) 800
- (d) 900

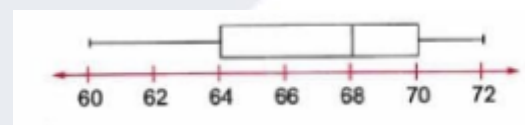


104. If the arithmetic mean of the numbers 3,4,8,X,2,X is 15, what is the value of X?

- (a) 9
- (b) 18
- (c) 29
- (d) 58

105. The opposite figure represents a box plot for 30 student masses, in kilograms. What is the first quartile ?

- (a) 60 kg
- (b) 64 kg
- (c) 68 kg
- (d) 70 kg

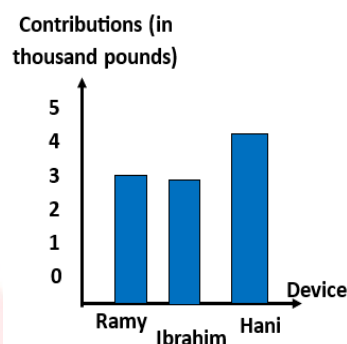


106. If the mean for the five numbers is 34, the median is 36, and the mode is 39 then the smallest possible value in this set of numbers is

- (a) 25
- (b) 22
- (c) 21
- (d) 18

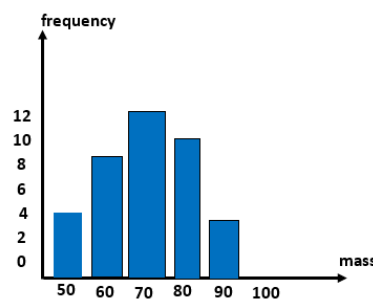
107. The opposite bar chart represents the contributions of three friends (in thousands of pounds) to a project. If their shares in the project are represented by circular sectors, what is the central angle of Hani's sector?

- (a) 72°
 (b) 108°
 (c) 144°
 (d) 162°

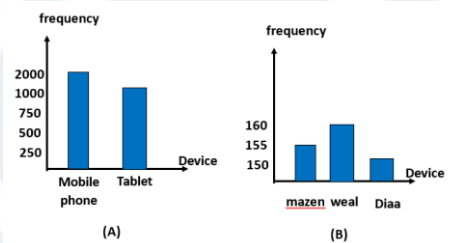


108. The opposite figure shows the histogram for the weight distribution in Kilograms of 38 students. How many of them weigh 70 kg or more?

- (a) 12
 (b) 19
 (c) 22
 (d) 26



109. The two bar charts below, one of them represents the heights of three friends, and the other represents the number of mobile phones or tablets owned by employees in a company. Which of the two charts is considered misleading?



- (a) Only chart A is misleading
 (b) Only chart B is misleading
 (c) Both charts are misleading.
 (d) Neither chart is misleading.

110. Youssef scored 48, 47, 46, 48, and 45 in five math tests. If the teacher removed the lowest score, which of the following is correct?

- (a) The mode increase
 (b) Median decrease.
 (c) The mean increase
 (d) The median doesn't change.

111. If for set of data there is $\sum f = 12$ and $\sum (f \times x) = 156$, what is value of \bar{X} ?

- (a) 13
 (b) 144
 (c) 168
 (d) 1,872

112. If the arithmetic mean of the numbers: $X + 2, X - 5, 2X + 4, 8, X + 1, 7$, what is the value of X?

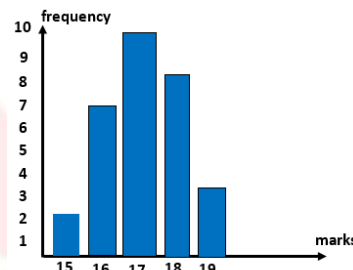
- (a) 3
 (b) 4
 (c) 5
 (d) 6

113. If the arithmetic mean of a student's marks in five exams is 94, and his marks in the first four exams are 97, 92, 94, and 91, how many marks did he score in the fifth exam?

- (a) 90 (b) 93 (c) 96 (d) 98

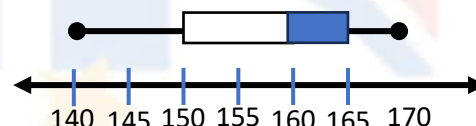
114. The figure below shows the marks of 30 students , what is the arithmetic mean of these marks?

- (a) 17
(b) 17.1
(c) 17.6
(d) 18



115. The figure below represents the box plot of the heights of 50 students in centimeters What is the value of the first quartile ?

- (a) 140cm
(b) 150cm
(c) 160cm
(d) 165cm



116. If $\frac{4}{5} = \frac{2x}{7}$ what is the value of x?

- (a) 11.2 (b) 5.6 (c) 2.8 (d) 1.4

117. What is the reciprocal of the number $0.\overline{36}$?

- (a) $\frac{4}{11}$ (b) $-\frac{4}{11}$ (c) $4\frac{2}{3}$ (d) $2\frac{3}{4}$

118. Which of the following equations is equivalent to the equation: $x+12=5$

- (a) $3x+2=5$ (b) $4x+3=7$ (c) $2x+2=0$ (d) $x+2=7$

119. What is the simplest form for the expression: $7b+4a-2-2b-3a+2$?

- (a) $5b+a+2$ (b) $5b+7a$ (c) $5b+a$ (d) $9b+7a+4$

120. If $A \subset B$, then $A \cup B =$

- (a) A (b) B (c) $A \cap B$ (d) \emptyset

121. What is the solution set of the equation $\left(2x + \frac{1}{3}\right) = 6$ in \mathbb{Z} ?

- (a) $\left\{\frac{4}{3}\right\}$ (b) $\{-1\}$ (c) $\{3\}$ (d) \emptyset

122. What is the value of when $b^2 - 2c$ when $c = -1$ and $b = 3$?

- (a) 2 (b) 7 (c) 9 (d) 11

123. If the map scale is 1:360,000 and the distance between two points on the map is 5.5 cm, what is the real distance in kilometres?

- (a) 20 (b) 19.8 (c) 18 (d) 17.8

124. Which of the following does not equal $4a$?

- (a) $4 + a$ (b) $2a + 2a$ (c) $a + a + a + a$ (d) $a + 3a$

125. Two consecutive integers whose sum 45. Which of the following equations expresses this?

- (a) $x + x + 1 = 46$ (b) $x + x - 1 = 44$
(c) $x + x + 2 = 45$ (d) $x + x + 1 = 45$

126. Omar decided to read a book with a total of $(7x + 31)$ pages. He reads $(4x + 17)$ pages over three days. How many pages does Omar have left to finish reading the entire book?

- (a) $11x + 48$ (b) $3x - 14$
(c) $11x + 14$ (d) $3x + 14$

127. 180 pounds are to be divided between two persons in the ratio 7: 5 What is the larger share?

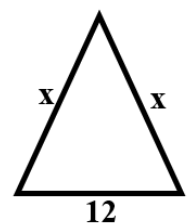
- (a) 135 pounds (b) 105 pounds (c) 75 pounds (d) 60 pounds

128. What is the mathematical formula that expresses the area (A) of a parallelogram with a base length (l) and its corresponding height (h) ?

- (a) $A = \frac{1}{2}lh$ (b) $A = l + h$ (c) $A = lh$ (d) $A = \frac{l}{h}$

129. If the perimeter of the opposite triangle is 46 cm, what is the value of X?

- (a) 23
(b) 20
(c) 17
(d) 14



130. What is the term that likes $15Xy$?

- (a) $-2x^2y$ (b) $-3yx$ (c) $4xy^2$ (d) $5x^2y^2$

131. $5x - (-4x) = \dots\dots\dots$

- (a) $-9x$ (b) $-x$ (c) x (d) $9x$

132. Which of the following equations does not equivalent to $9 = 5x - 1$?

- (a) $5x = 10$ (b) $3x = 6$
(c) $4x - 1 = 11$ (d) $x = 2$

- 133.** What is the number of terms in the algebraic expression $1+2ab$?
- (a) 1 (b) 2 (c) 3 (d) 4
- 134.** What is the solution set of the equation $3(X-2) = X$ in \mathbb{Z} ?
- (a) {2} (b) {3} (c) {4} (d) {5}
- 135.** The mathematical form that describes "doubling the number X added to 5 gives 1" ?
- (a) Algebraic expression (b) Inequality
(c) Equation (d) Mathematical formula
- 136.** What is the variable that has a coefficient of 5 in the algebraic expression $-5x + 5xy - 5y - 5$?
- (a) x (b) y (c) xy (d) 5
- 137.** A triangle has a base length of 14 cm, and its corresponding height is $(4X + 2)$ cm. If its area is 70 square centimetres, what is the value of X ?
- (a) 2cm (b) 3cm (c) 4cm (d) 5cm
- 138.** If $0.\overline{3}X + 5 = 2$, what is the value of X ?
- (a) -10 (b) -9 (c) -3 (d) 3
- 139.** What is the algebraic expression equivalent to the following expression: $2y + 5 - 4y - 6$?
- (a) $2y + 1$ (b) $-2y - 1$ (c) $2y - 1$ (d) $-2y + 1$
- 140.** Which of the following inequalities represents the appropriate height X in centimetres for selecting someone to practice a certain sport, where the height must not be less than 165 cm?
- (a) $x < 165$ (b) $x > 165$ (c) $x \leq 165$ (d) $x \geq 165$
- 141.** If $5 = 3x - 1$, what is the value of $2x + 3$?
- (a) 2 (b) 3 (c) 5 (d) 7
- 142.** What is the solution set of the equation $0 = 10 + 2(4m - 3)$ in \mathbb{N} ?
- (a) {1} (b) {2} (c) $\{-\frac{1}{2}\}$ (d) \emptyset
- 143.** If the age of Wael now is X years old and 5 years ago his age was 22 years, which of the following equations represents the current situation ?
- (a) $x + 5 = 27$ (b) $x + 5 = 22$ (c) $x - 5 = 22$ (d) $x - 5 = 17$

144. Which of the following scale drawings is equivalent to "every 1 cm in the drawing represents 6.5 km in reality"?

- (a) 1: 6, 500, 000 (b) 1: 6. 5 (c) 1: 650, 000 (d) 1: 6, 500

145. If $x \notin \{2, 5, 7\}$, which of the following can be a value of X?

- (a) 1 (b) 2 (c) 5 (d) 7

146. Which of the following is equal to $\frac{3}{5} + \frac{-2}{3}$?

- (a) $\frac{1}{8}$ (b) $\frac{1}{15}$ (c) $-\frac{6}{15}$ (d) $-\frac{1}{15}$

147. A piece of land with an area of 63 feddans was divided between two persons in the ratio of 4:5. Which of the following could represent the share of either person?

- (a) 9 (b) 45 (c) 28 (d) 30

148. $\{5, 0\} \dots\dots\dots \{7, 0, 5\}$

- (a) \in (b) \notin (c) \subset (d) $\not\subset$

149. What is the multiplicative inverse of $2\frac{1}{4}$?

- (a) $\frac{9}{4}$ (b) $\frac{3}{2}$ (c) $\frac{4}{9}$ (d) $\frac{2}{3}$

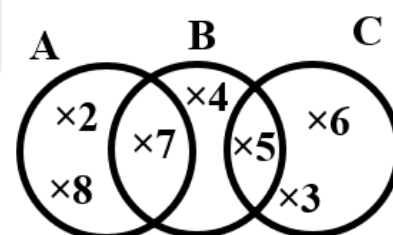
150. The length of an insect is 0.4 mm and its length after magnification is 6 cm, what is the magnification ratio ?"

- (a) 1: 15 (b) 15: 1 (c) 1: 150 (d) 150: 1

151. In the following figure:

$A \cap C = \dots\dots\dots$

- (a) {5}
(b) {3, 4, 5}
(c) {3}
(d) \emptyset



152. If $x = |-3|$ and $y = -4$, then $xy = \dots\dots\dots$

- (a) -12 (b) -1 (c) 1 (d) 12

153. Bassem bought a refrigerator with a 10% discount, if he saved 430 LE. What is the price of refrigerator after discount.

- (a) 4, 300 (b) 3, 870 (c) 860 (d) 430

154. The ratio among the length of the sides of a triangle is 3: 4: 5, if its perimeter is 72 cm What is the length of its greatest side ?

- (a) **30cm** (b) **24cm** (c) **18cm** (d) **15cm**

155. $-2 - (-3) = \dots\dots\dots$

- (a) **-5** (b) **-1** (c) **1** (d) **5**

156. What is the number of subsets of the set {5,7}?

- (a) **1** (b) **2** (c) **4** (d) **6**

157. $24\frac{1}{3}\% + \dots\dots\dots = 0.\bar{3}$

- (a) **8%** (b) **9%** (c) **10%** (d) **11%**

158. Which of the following pairs of ratios does not represent a proportion?

- (a) $\frac{2}{5}, \frac{4}{10}$ (b) $\frac{7}{14}, \frac{2}{4}$ (c) $\frac{5}{3}, \frac{25}{9}$ (d) $\frac{7}{3}, \frac{35}{15}$

159. If the distance between two cities on a map is drawn at a scale of 1: 1,000,000 and the map distance is 12 cm, what is the real distance in kilometers

- (a) **60** (b) **120** (c) **150** (d) **180**

160. If $\frac{x+5}{12} = \frac{5}{4}$ what is the value of $x - 2$?

- (a) **8** (b) **9** (c) **10** (d) **12**

161. What is the result of subtracting $\frac{1}{8}$ from $\frac{9}{8}$?

- (a) **-1** (b) **1** (c) $\frac{5}{4}$ (d) $-\frac{5}{4}$

162. What is the suitable equation to determine the price of one shirt if you purchased three shirts of the same type from an online store if the total cost is 490 LE, after adding 40 LE for shipping?

- (a) **$x + 40 = 490$** (b) **$3(x + 40) = 490$**
(c) **$x + 120 = 490$** (d) **$3x + 40 = 490$**

163. What is the algebraic expression equivalent to the following expression:
 $2x - 3 - 4x + 1$?

- (a) **$2x - 2$** (b) **$-2x + 2$** (c) **$-6x - 4$** (d) **$-2 - 2x$**

164. Which of the following equations is equivalent to the equation $2n + 1 = 3$?

- (a) $n + 2 = 6$ (b) $2n = 4$ (c) $2n = 2$ (d) $n + 1 = \frac{3}{2}$

165. Which inequality expresses that Bassem requires a minimum of 10 gigabytes per month to accomplish his work online ?

- (a) $x < 10$ (b) $x > 10$ (c) $x \leq 10$ (d) $x \geq 10$

Question 2 Answer each of the following:

1) Three persons invested in the construction of a factory. The first person paid 9,000,000 LE , the second person paid 6,000,000 LE, and the third person paid 7,500,000 LE.

At the end of the first year, the profits amounted to 2,250,000 LE, and the profits were distributed based on each person's capital contribution. Calculate the share of the first year's profit for each person.

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2) The opposite table shows the number of minutes a group of people spends on phone calls. Calculate the average number of minutes a person spends on phone conversations

Minutes	2	3	4	5	6
Frequency	12	20	36	20	12

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3) If my mother's age now is three times my age, and she is 24 years older than me, how old is each of us now?

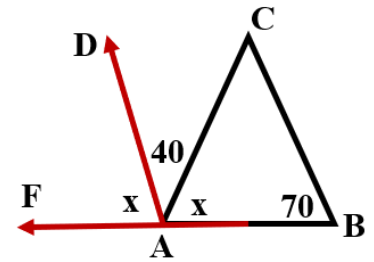
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4) In the opposite figure:

$$m(\angle CAD) = 40^\circ$$

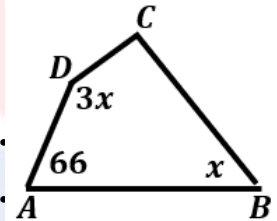
$$m(\angle B) = 70^\circ$$

Prove that : $\overrightarrow{AD} \parallel \overrightarrow{BC}$



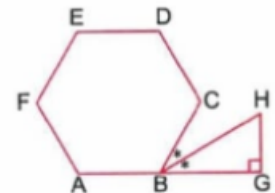
5) In the opposite figure:

Calculate with proof the value of X



6) In the opposite figure: ABCDEF is a regular hexagon.

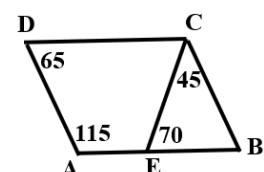
Find with proof: $m(\angle H)$



7) A teacher of mathematics wrote an integer on the board, and then he wrote another number , which was 17 less than twice the first number. If the sum of both numbers is 112, what number did the teacher initially write?

8) An amount of 7,200 LE was divided among three people in the ratio of 5: 4:3. Find each person's share

9) In the following figure: Prove that: ABCD is a parallelogram.



10) The following data represents the number of children's toys sold by a store over 30 days?

13	32	12	33	27	37	44	8	26	32
36	41	45	9	38	16	46	48	29	15
13	32	33	14	18	28	34	25	7	18

Represent these sales using a stem-and-leaf plot.

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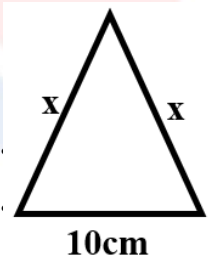
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11) If the perimeter of the adjacent triangle is 34 cm , what is the value of X?

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12) If the price of a television is 12,600 LE after a 16% discount, what was the price of the television before the discount?

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13) In the opposite figure : Calculate with prove the value of x^0

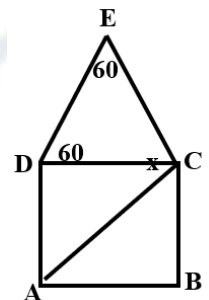
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14) In a survey conducted among a group of first preparatory grade students about their favourite color, the results were recorded in the opposing table. Draw a pie chart to represent this table.

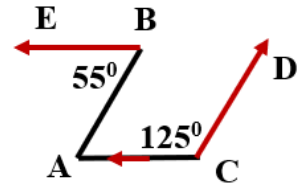
Favorite color	Percentage
Red	25%
Blue	30%
Green	10%
Yellow	35%

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- 15) In the opposite figure: $\overrightarrow{CA} // \overrightarrow{BE}$ $m(\angle B) = 55^\circ$, $m(\angle C) = 125^\circ$ prove that : $\overrightarrow{AB} // \overrightarrow{CD}$



- 16) Simplify the expression: $3(a - 2b) - 2(a + b)$ Then find the value of the expression when $a = 5$ and $b = -1$

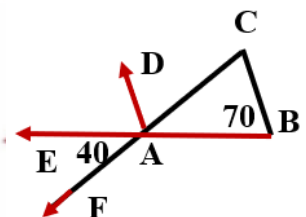
- 17) Three persons participated in a project with a capital of 750,000 LE. It was divided in the ratio 4:5:3 Calculate the share of each person in the capital.

- 18) ABCD is a parallelogram whose diagonals intersect at M. If A (3, 4) and M (-1,5), find the coordinates of C.

- 19) In the opposite figure:

$$\overrightarrow{BE} \cap \overrightarrow{CF} = \{A\}$$

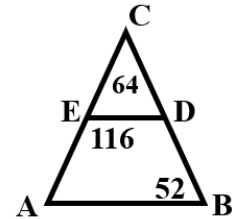
Prove that : \overrightarrow{AD} bisects $\angle EAC$



- 20) ABCD is a rectangle whose diagonals are intersecting at M. If $AC = (3X - 4)$ cm and $BM = (X + 1)$ cm, what is the value of X?

21) In the opposite figure:

Prove that: $\overline{ED} \parallel \overline{AB}$



22) Divide an amount of 9,600 LE among three individuals in the ratio of 4:5:6
What is the share of each individual?

23) The opposite table shows the salaries of a group of employees in a company, expressed in LE. The company owner asserted that the average salary of his employees is 6,500 LE. Explain why the average salary might be misleading and give the impression of being the salaries higher than their actual values for most employees.

Salaries in L.E.	
Employee (1)	25,000
Employee (2)	4,000
Employee (3)	3,000
Employee (4)	2,500
Employee (5)	2,500
Employee (6)	2,000

24) Find solution set of the equation: $4(X-3) = 2(X+4)$ in \mathbb{Q}

25) The table below shows the number of hours studied weekly by a student in different subjects.

Subject	Arabic	Science	Math	English	Social Studies
Number of Students	8	5	11	6	6

Represent the table using pie charts.

- 26) The opposite table shows the time (in minutes) that different individuals spend on phone calls. Find the number of people who speak for 5 minutes, knowing that the average duration is 5.9 minutes.

Minutes (X)	4	5	6	7	8
Frequency (f)	22	M	36	20	12

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- 27) A restaurant displayed a menu with the prices of lunch meals in Egyptian pounds and announced that the average meal price is 132 pounds Explain why the average meal price might be misleading ?

Menu	
Kofta ($\frac{1}{2} kg$)	180
$\frac{1}{2} chicken$	150
Shawarma	160
Fish ($\frac{1}{2} kg$)	150
Water Bottle	20

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- 28) The following data represents the number of trousers sold by a store over a period of 30 days:

34	34	46	13	33	42	33	14	37	14
47	45	29	17	38	19	39	28	15	9
19	16	33	6	29	27	25	49	7	35

Represent these sales using a stem and leaf plot

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- 29) group of individuals were asked about their favorite color, and the results were as follows:

Color	Red	Yellow	Green	Black
Present	15%	25%	15%

Find the percentage of individuals who preferred Green, then represent the data using a pie chart

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30) The table below shows the number of work hours for 100 workers.

Hours (x)	4	6	7	8	9	10	13
Number of workers (f)	15	13	30	M	10	8	2

Find the value of m, then calculate the mean (average) of the number of work hours

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31) The following are the scores of 30 students in one of the tests:

25	35	23	35	36	34	40	28	35	20
37	36	30	39	29	37	28	38	40	32
40	33	26	35	22	29	37	38	37	31

Create a frequency table with intervals (20-,24-,...), then represent the data using a histogram

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32) A merchant bought goods for 9,620 LE and spent 680 LE on transportation. , then sold them with a 20% profit. Find the selling price.

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33) Find in \mathbb{Q} the solution set of the equation: $5X+7=2X-5$

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34) If the map scale is 1:300,000, and the real distance between two cities is 270 km, how far apart are they on the map?

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35) Find in \mathbb{N} the solution set of the equation: $3(X-2)-4X-8$

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36) A money box contains 42 banknote of 20 LE and 50 LE denominations. If the total value of the money in the money box is 1,800 LE, how many 20 LE banknote are there?

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37) Find the solution set of the equation in \mathbb{Q} : $3(2x - 4) - 8 = x$

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38) Write the expression in its simplest form: $4(m - n + 4) - 2(2m - 4n + 8)$, then find the value of the expression when $n = 5$

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39) Temperature is measured in Fahrenheit ($^{\circ}\text{F}$) or Celsius ($^{\circ}\text{C}$). Use the mathematical formula $F = 1.8C + 32$ to convert the temperature from 40°C to Fahrenheit

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40) Find three consecutive even numbers whose sum equals 168.

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41) A rectangle has a length 7 cm greater than its width, and its perimeter is 66 meters Find the length of the rectangle

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42) Write in the simplest form of the expression: $(n - 3m) - 3(2n - 1)$, and then find its value at $n = 2$, $m = - 2$

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43) Find in \mathbb{Q} the solution set of the equation: $2\left(\frac{1}{2}x - 3\right) = 4x$

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44) Write an algebraic term like the algebraic term x^2 where its coefficient is -3 ,then find the sum of both terms.

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45) Write the mathematical formula that expresses the total area A of a cube, where one of its faces has an area equal to x^2

.....

46) Ahmed, Youssef, and Mohamed invested in a business project where Ahmed contributed 20,000 pounds, Youssef contributed 16,000 pounds, and Mohamed contributed 14,000 pounds. At the end of the year, the net profit was 5,000 pounds. Find Mohamed's share of the profits.

.....

47) If a model of a rectangular piece of land with dimensions of 4 cm and 5 cm, where each 1 cm in the model represents 7 meters in reality, what is the real perimeter of the piece of land for building a fence around it?

.....

48) Given: $A = \{9, 6, 7, 10\}$, $B = \{8, 9, 10\}$

Find

(1) $A \cup B$

(2) $A \cap B$

.....

49) A submarine moves vertically downward under the water and when it reached a depth of 56 meters the submarine started to ascend again. Determine the submarine's position after 18 minutes if they ascend at a speed of 3 meters per minute.

.....

50) A car consumes 7 liters of fuel to cover a distance of 84 km. How much fuel does it need to cover a distance of 156 km if it maintains the same fuel efficiency?

.....

51) If $A = \{1, 5, 3, 7\}$, and $B = \{1, 2, 5, 9\}$ Find each of: $A \cup B$ and $A \cap B$

.....

52) Alaa purchased a mobile phone for 6,750 LE and sold it for 7,776 LE Calculate the percentage of Alaa's profit.

.....

53) Spot the mistakes and make the necessary corrections.

(1) $-8 - (-3) = -11$	(2) $-\frac{5}{3} \times \frac{9}{15} = 1$
(3) $\frac{5}{8} + \frac{-3}{7} = \frac{2}{15}$	(4) $45 \div (-8) = 6$

54) If the magnification ratio of an insect's image is 30: 1, and the insect's real length is $2\frac{1}{2} mm$ find the length of the insect in the image in centimeters.

.....

55) If a shark ascends 124.1 meters from a depth of 152.5 meters below the water surface, where is the shark position relative to the water surface now?

.....

56) ABCD is a parallelogram in which the points A (5,4), B (3,1) and C (-4,1), find: (1) Coordinates of the diagonals intersection, (2) The coordinates of point D

.....

57) In a survey of people about their preferred breakfast food, the results are as follows

Food type	Cheese	Beans and Falafel	Potatoes	Halvah and Jam
Percentage	30%	25%	15%

(1) Find the percentage of people who prefer Halvah and Jam?

(2) Represent the survey results using a pie chart.

.....

58) Using the properties of multiplication in \mathbb{Z} , find the value of:
 $(-4) \times (-8) \times 25 \times (-125)$

.....

59) Use the distributive property to find the result of the following:

$$-\frac{4}{9} \times 8 + 9 \times \left(-\frac{4}{9}\right) + \frac{-4}{9}$$

.....

60) If $a = 1\frac{1}{2}$, $b = \frac{3}{4}$, $c = -\frac{2}{3}$, find the numerical value of the expression:

$$c + b$$

.....

61) A magnifying glass was used to magnify an insect from 0.7 mm to 14 cm. Find the magnification ratio.

.....

مراجعات النخبة

Question 1

Choose the correct answer:

1) (d)	2) (c)	3) (b)	4) (b)
5) (b)	6) (b)	7) (b)	8) (c)
9) (d)	10) (a)	11) (a)	12) (b)
13) (d)	14) (b)	15) (c)	16) (d)
17) (d)	18) (d)	19) (b)	20) (C)
21) (a)	22) (b)	23) (d)	24) (c)
25) (a)	26) (c)	27) (b)	28) (a)
29) (a)	30) (c)	31) (a)	32) (d)
33) (c)	34) (c)	35) (c)	36) (d)
37) (b)	38) (b)	39) (d)	40) (c)
41) (c)	42) (c)	43) (b)	44) (d)
45) (b)	46) (b)	47) (b)	48) (a)
49) (a)	50) (c)	51) (c)	52) (c)
53) (d)		54) (d)	55) (b)
56) (d)	57) (b)	58) (c)	59) (b)
60) (b)	61) (b)	62) (a)	63) (d)
64) (c)	65) (b)	66) (b)	67) (c)
68) (b)	69) (b)	70) (b)	71) (d)
72) (c)	73) (c)	74) (a)	75) (b)
76) (b)	77) (a)	78) (c)	79) (a)
80) (a)	81) (c)	82) (b)	83) (b)
84) (c)	85) (b)	86) (c)	87) (d)
88) (c)	89) (b)	90) (c)	91) (c)
92) (b)	93) (d)	94) (a)	95) (c)
96) (c)	97) (a)	98) (b)	99) (a)
100) (b)	101) (b)	102) (d)	103) (c)
104) (a)	105) (c)	106) (d)	107) (a)
108) (b)	109) (c)	110) (c)	111) (d)
112) (c)	113) (c)	114) (a)	115) (c)
116) (c)	117) (b)	118) (b)	119) (c)
120) (d)	121) (c)	122) (c)	123) (b)
124) (d)	125) (d)	126) (b)	127) (a)

128) (d)	129) (d)	130) (b)	131) (c)
132) (c)	133) (b)	134) (d)	135) (c)
136) (b)	137) (b)	138) (c)	139) (c)
140) (a)	141) (b)	142) (b)	143) (d)
144) (d)	145) (d)	146) (c)	147) (c)
148) (a)	149) (d)	150) (b)	151) (c)
152) (c)	153) (d)	154) (d)	155) (a)
156) (b)	157) (a)	158) (c)	159) (c)
160) (b)	161) (c)	162) (b)	163) (a)
164) (b)	165) (d)	166) (d)	167) (c)
168) (d)			

Question 2 Answer each of the following:

1) First :second :Third
 9,000,000 :6,000,000 :7,500,000 (\div
 100,000)
 90 :60 :75 (\div 15)
 6 :4 :5

- Sum of parts = $6 + 4 + 5 = 15$ parts
- Part value = $\frac{2,250,000}{15} = 150,000LE$
- The first person's share = $6 \times 150,000 = 900,000 LE$
- The second person's share = $4 \times 150,000 = 600,000 LE$
- The third person's share = $5 \times 150,000 = 750,000 LE$

2) .

Number of minutes (x)	Frequency (f)	(x.f)
2	12	24
3	20	60
4	36	144
5	20	100
6	12	72
Sum	100	400

- The mean of what the person spends on phone call

$$= \frac{\sum(f \cdot x)}{\sum(f)} = \frac{400}{100} = 4 \text{ minutes}$$

3] Let the age of the son be x , the age of the mother is $3x$

$$\therefore 3x - x = 24$$

$$\therefore 2x = 24$$

$$x = \frac{24}{2} = 12$$

The age of the son is 12 years, the age of the mother 36 years

4] $m(\angle FAD) + m(\angle DAC) + m(\angle BAC) = 180^\circ$

$$x^\circ + 40^\circ + x^\circ = 180^\circ$$

$$2x + 40^\circ = 180^\circ$$

$$2x = 180^\circ - 40^\circ = 140^\circ$$

$$x = \frac{140}{2} = 70$$

$$m(\angle FAD) = m(\angle B) = 70^\circ$$

And they are corresponding angles

$$\overrightarrow{AD} // \overrightarrow{BC}$$

5] ABCD is a quadrilateral

The sum of measures of its interior angle = 360°

$$66 + 90 + x + 3x = 360$$

$$4x + 156^\circ = 360^\circ$$

$$4x = 360^\circ - 156^\circ = 204^\circ$$

$$x = \frac{204}{4} = 51^\circ$$

6] Let the age of the son be x , the age of the mother is $3x$

$$3x - x = 24$$

$$2x = 24$$

$$x = \frac{24}{2} = 12$$

The age of the son is 12 years, the age of the mother 36 years

$$m(\angle CBG) = 180^\circ - 120^\circ = 60^\circ$$

$$m(\angle CBH) = m(\angle HBG)$$

$$m(\angle HBG) = 60^\circ \div 2 = 30^\circ$$

in $\triangle HGB$

$$m(\angle G) = 90^\circ, m(\angle HBG) = 30^\circ$$

$$m(\angle H) = 180^\circ - (90^\circ + 30^\circ) = 60^\circ$$

7] Let the number be x , *it twice*

$$x + (2x - 17) = 112$$

$$3x - 17 = 112$$

$$3x = 112 + 17 = 129$$

$$x = \frac{129}{3} = 43$$

The number written by the teacher initially is 43

8] The sum of parts = $3 + 4 + 5 = 12$ parts

$$\text{The value of one part} = \frac{7,200}{12} = 600L. E$$

$$\text{The share of the first person} = 3 \times 600 = 1,800L. E$$

$$\text{The share of the second person} = 4 \times 600 = 2,400L. E$$

$$\text{The share of the third person} = 5 \times 600 = 3,000LE$$

9] In $\triangle BCE$

$$m(\angle BCE) = 45^0, m(\angle CEB) = 70^0$$

$$m(\angle B) = 180^0 - (45^0 + 70^0) = 65^0$$

$$m(\angle B) + m(\angle A) = 65^0 + 115^0 = 180^0$$

Two interior angle on the same side of the transversal

$$\overline{AB} // \overline{DC}$$

From (1) and (2): ABCD is a parallelogram

10] .

Stems	Leaves
0	789
1	23345688
2	56789
3	222334678
4	14568
Key:	1 3 means 12

11] The perimeter of the triangle = the sum of its side lengths

$$x + x + 10 = 34$$

$$2x + 10 = 34$$

$$2x = 34 - 10 = 24$$

$$x = \frac{24}{2} = 12cm$$

12] The price before discount Discount ratio The price after discount

100% :16% :84%
? : :12,600

$$\text{The price before discount} = \frac{100 \times 12,600}{84} = 15,000LE$$

13] ABCD is a square, overline \overline{AC} is a diagonal

$$m(\angle ACD) = 45^0$$

In $\triangle CDE$

$$m(\angle ECD) = 180^0 - (60^0 + 60^0) = 60^0$$

$$m(\angle ECA) = m(\angle ACD) + (\angle ECD)$$

$$x = 45^0 + 60^0 = 105^0$$

14] The measure of the central angle of each sector

$$\text{Red} = 25\% \times 360^0 = 90^0$$

$$\text{Blue} = 30\% \times 360^0 = 108^0$$

$$\text{Green} = 10\% \times 360^0 = 36^0$$

$$\text{Yellow} = 35\% \times 360^0 = 126^0$$

15] $\overline{AC} \parallel \overline{BE}$, \overline{AB} is a transversal

$$m(\angle B) = m(\angle A) = 55^0$$

Two alternating interior angles)

$$m(\angle A) + m(\angle C) = 55^0 + 125^0 = 180^0$$

And they are two interior angles on the same side of the transversal

$$\overline{AB} \parallel \overline{CD}$$

$$\text{16]} \quad 3(a - 2b) - 2(a + b) = 3a - 6b - 2a - 2b = 3a - 2a - 6b - 2b = a - 8b$$

$$\text{At } a = 5, b = -1$$

$$a - 8b = 5 - 8 \times (-1) = 5 + 8 = 13$$

17] First : second : third : sum

$$4 : 5 : 3 : 12$$

$$? : ? : ? : 750,000$$

$$\text{What the first person paid} = \frac{4 \times 750,000}{12} = 250,000LE$$

$$\text{What the second person paid} = \frac{5 \times 750,000}{12} = 312,500LE$$

$$\text{What the third person paid} = \frac{3 \times 750,000}{12} = 187,500LE$$

18] Let $C(x,y)$

$$\left(\frac{3+x}{2}, \frac{4+y}{2}\right) = (-1, 5)$$

$$\frac{3+x}{2} = -1, 3+x = -2, x = -5$$

$$\frac{4+y}{2} = 5, 4+y = 10, y = 6$$

$$C(-5, 6)$$

19] $\overline{AD} \parallel \overline{BC}$, \overline{AB} is a transversal

$$m(\angle DAE) = m(\angle B) = 70^\circ, \text{ (corresponding angles)}$$

$$\overline{CF} \cap \overline{BE} = \{A\}$$

$$m(\angle CAB) = m(\angle FAE) = 40^\circ, \text{ (V.O.A)}$$

$$m(\angle DAC) = 180^\circ - (70^\circ + 40^\circ) = 70^\circ$$

$$m(\angle EAD) = m(\angle DAC)$$

$$\overline{AD} \text{ bisect } \angle EAC$$

20] ABCD is a rectangle

$$BM = \frac{1}{2}AC$$

$$x + 1 = \frac{1}{2}(3x - 4)$$

$$x + 1 = \frac{3}{2}x - 2$$

$$x - \frac{3}{2}x = -2 - 1$$

$$-\frac{1}{2}x = -3$$

$$x = -3 \times (-2) = 6$$

21] In ABC

$$m(\angle C) = 64^\circ, m(\angle B) = 52^\circ$$

$$m(\angle A) = 180^\circ - (64^\circ + 52^\circ) = 64^\circ$$

$$m(\angle A) + m(\angle AED) = 64^\circ + 116^\circ = 180^\circ$$

and they are two interior angles on the same side of the transversal

$$\overline{ED} \parallel \overline{AB}$$

22] First : second : third : sum

$$4 : 5 : 6 : 15$$

$$? : ? : ? : 9,600$$

$$\text{First share} = \frac{4 \times 9,600}{15} = 2,560L. E$$

$$\text{Second share} = \frac{5 \times 9,600}{15} = 3,200L. E$$

$$\text{Third share} = \frac{6 \times 9,600}{15} = 3,840L. E$$

$$231 \text{ Mean} = \frac{25.000+4.000+3.000+2.500+2.500+2.000}{6} = 6,500$$

That is, the company owner used the arithmetic mean to measure the average salaries in the company , and this is a misleading measure because there is an exterm value of 25,000, which gave an impression of salaries that is contrary to reality. and he should use (the median) which is more reliable in case of exterm values.

$$\text{The median} = \frac{2,500+3,000}{2} = 2,750 \text{ L. E}$$

$$241 \quad 4(x - 3) = 2(x + 4)$$

$$4x - 12 = 2x + 8$$

$$4x - 2x = 8 + 12$$

$$2X = 20$$

$$x = 20 \div 2$$

$$x = 10$$

The solution set = {10}

251 The measure of the central angle of each sector:

$$(\text{Arabic}) = \frac{8}{36} \times 360^0 = 80^0$$

$$(\text{Science}) = \frac{5}{36} \times 360^0 = 50^0$$

$$(\text{math}) = \frac{11}{36} \times 360^0 = 110^0$$

$$(\text{English}) = \frac{6}{36} \times 360^0 = 60^0$$

$$(\text{social studies}) = \frac{6}{36} \times 360^0 = 60^0$$

261 .

x	f	$(f \cdot x)$
4	22	88
5	M	5m
6	36	216
7	20	140
8	12	96
Total	90+m	540+5m

$$\bar{x} = \frac{\sum(fx)}{\sum f} = 5.9, \frac{540+5m}{90+m} = 5.9$$

$$531 + 5.9m = 540 + 5m, 5.9m - 5m = 540 - 531$$

$$0.9m = 9$$

$$m = 9 \div 0.9 = 10$$

The number of people whose speak 5 minutes is 10

27) The mean of prices = $\frac{180+150+160+150+20}{5} = 132LE$

28)

Stems	Leave
0	679
1	34456799
2	57899
3	333445789
4	25679
Key	4 2 means 42

29) The measure of the central angle of each sector

Green = $100\% - (15\% + 25\% + 15\%) = 45\%$

Red = $\frac{15}{100} \times 360^\circ = 54^\circ$

Yellow = $\frac{25}{100} \times 360^\circ = 90^\circ$

Green = $\frac{45}{100} \times 360^\circ = 162^\circ$

Black = $\frac{15}{100} \times 360^\circ = 54^\circ$

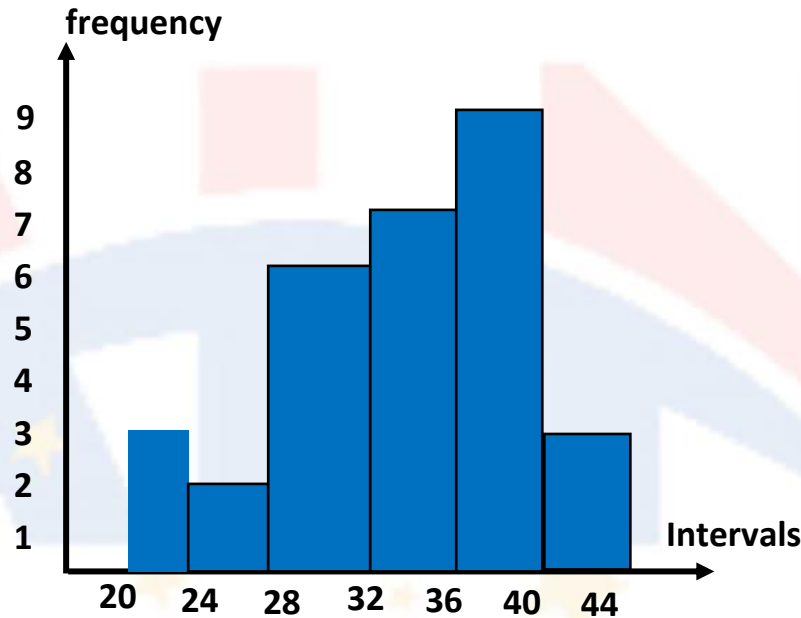
30) $m = 100 - (15 + 13 + 30 + 10 + 8 + 2) = 22$

(x)	(f)	(f . x)
4	15	60
6	13	78
7	30	210
8	22	176
9	10	90
10	8	80
13	2	26
Total	100	720

$$\bar{x} = \frac{720}{100} = 7.2$$

31)

Sets	20 -	24 -	28 -	32 -	36 -	40 -
Frequency	3	2	6	7	9	3



32) The total cost = $9,620 + 680 = 10,300$ LE

The percent of selling = $100\% + 20\% = 120\%$

The selling price = $10,300 * 120\% = 12,360$ LE

33) $5x + 7 = 2x - 5$

$$5x - 2x = -5 - 7$$

$$3x = -12$$

$$x = -12 \div 3 = -4$$

The solution set = $\{-4\}$

34) Drawing scale = $\frac{\text{length in drawing}}{\text{Real length}}$

$$\frac{1}{3,000,000} = \frac{\text{Length in drawing}}{270 \times 100,000}$$

$$\text{Length in drawing} = \frac{1 \times 27,000,000}{3,000,000} = 9\text{cm}$$

35) $3(x - 2) - 4x = -8$

$$3x - 6 - 4x = -8$$

$$3x - 4x = -8 + 6$$

$$-x = -2$$

$$x = 2$$

The solution set = $\{2\}$

- 36)** Let the number of 20-LE banknote be X and the number of 50-LE banknote be $(42 - x)$

$$20X + 50(42 - X) = 1,800$$

$$20x + 2,100 - 50x = 1,800$$

$$20x - 50x = 1,800 - 2,100$$

$$-30x = -300$$

$$x = -300 \div (-30) = 10$$

The number of 20-LE banknote is 10

- 37)** $3(2x - 4) - 8 = x$

$$6x - 12 - 8 = x$$

$$6x - 20 = x$$

$$6x - x = 20$$

$$5x = 20$$

$$x = 20/5$$

$$x = 4$$

The solution set = $\{4\}$

- 38)** $(m - n + 4) - 2(2m - 4n + 8)$

$$= 4m - 4n + 16 - 4m + 8n - 16$$

$$= 4m - 4m - 4n + 8n + 16 - 16$$

$$= (4m - 4m) + (-4n + 8n) + (16 - 16) = 4n, \text{ When } 15$$

- 39)** $4n = 4 * 5 = 20$

- 40)** $F = 40 * 1.8 + 32 = 104$

Let the numbers are

$$x, x + 2, x + 4$$

$$x + x + 2 + x + 4 = 168$$

$$3x + 6 = 168$$

$$3x = 168 - 6 = 162$$

$$x = 162/3 = 54$$

The numbers are 54, 56 and 58

- 41)** Let the length be X meters and the width is $(X-7)$ m.

$$2(x + x - 7) = 66$$

$$2x - 7 = 66/2 = 33$$

$$2x = 33 + 7 = 40$$

$$x = 40/2 = 20$$

The length = 20 m.

42] The expression

$$2(n - 3m) - 3(2n - 1) = 2n - 6m - 6n + 3 = -4n - 6m + 3$$

$$\text{The value: } -4 * 2 - 6(-2) + 3 = -8 + 12 + 3 = 7$$

43] $2\left(\frac{1}{2}x - 3\right) = 4x$

$$x - 6 = 4x$$

$$x - 4x = 6$$

$$-3x = 6$$

$$x = 6 / (-3) = -2$$

44] The algebraic term is $-3x^2$

$$\text{The sum: } x^2 + (-3x^2) = -2x^2$$

45] $A = 6x^2$

46] Ahmed : Youssef : Mohamed : sum

$$20,000:16,000:14,000:50,000$$

$$?:?:?:5,000$$

$$\text{Mohamed's share} = \frac{14,000 \times 5,000}{50,000} = 1,400LE$$

47] Drawing scale = $\frac{\text{Length in drawing}}{\text{Real length}}$

$$\frac{1}{7m} = \frac{5cm}{\text{Real length}}$$

$$\text{Real length} = \frac{5 \times 7}{1} = 35m$$

$$\frac{1}{7m} = \frac{4cm}{\text{Real width}}$$

$$\text{Real width} = \frac{4 \times 7}{1} = 28m$$

$$\text{The perimeter} = 2(35 + 28) = 126m$$

48] $A \cup B = \{9, 6, 7, 10, 8\}$

$$A \cap B = \{9, 10\}$$

49] The submarine moves up a distance $= 18 \times 3 = 54m$ The submarine position after 18 minutes $= -56 + 54 = -2$

i.e. 2 meter below sea level

.. The depth of the submarine is 2 meters

50] Let X is the amount of fuel in litres that the car need.

$$\frac{x}{156} = \frac{7}{84}$$

$$x = \frac{7 \times 156}{84} = 13 \text{ litres}$$

51) $A \cup B = \{ 1, 5, 3, 7, 2, 9 \}$, $A \cap B = \{ 1, 5 \}$

52) The profit = $7,776 - 6,750 = 1,026$ LE

The percentage of profit = $\frac{1,026}{6,750} \times 100\% = 15.2\%$

53) (1) $-8 - (-3) = -8 + 3 = -5$

(2) $-\frac{5}{3} \times \frac{9}{15} = -1$

(3) $\frac{5}{8} + \frac{-3}{7} = \frac{35}{56} + \frac{-24}{56} = \frac{11}{56}$

(4) $45 \div (-8) = -6$

54) Length in drawing : Real Length

$$\begin{array}{ccc} 30 & : & 1 \\ ? & : & 2\frac{1}{2} \end{array}$$

The drawing length = $\frac{30 \times 2\frac{1}{2}}{1} = 75\text{mm} = 7.5\text{cm}$

55) The position of the shark = $-152.5 + 124.1 = -28.4$, then the shark at depth 28.4 meter

56) (1) $(\frac{1}{2}, \frac{5}{2})$, (2) $D(-2, 4)$

57) The percentage of persons who preferred halvah and jam = $100\% - (30\% + 25\% + 15\%) = 30\%$

The measure of central angle of each sectors

Cheese : $\frac{30}{100} \times 360^\circ = 108^\circ$

Beans and falafel = $\frac{25}{100} \times 360^\circ = 90^\circ$

Potatoes = $\frac{15}{100} \times 360^\circ = 54^\circ$

Halvah and jam = $\frac{30}{100} \times 360^\circ = 108^\circ$

58) $(-4) \times 25(-8)(-125)$ (Commutative property)

= $(-4 \times 25)(-8(-125))$ (Associative property)

= $-100 \times 1000 = -100000$

59) $-\frac{4}{9} \times (8 + 9 + 1) = -\frac{4}{9} \times 18 = -8$

60) $1\frac{1}{2} \times (-\frac{2}{3}) + \frac{3}{4} = \frac{3}{2} \times (-\frac{2}{3}) + \frac{3}{4} = -1 + \frac{3}{4} = -\frac{1}{4}$

61) The ratio of magnification = $\frac{\text{drawing length}}{\text{real length}} = \frac{14\text{cm}}{0.7\text{mm}}$

المراجعة رقم 3

Algebra

Q1 Choose the correct answer

- 1) If $\frac{8}{x} = 0.5$, then $X = \dots\dots\dots$
a) 8 b) 4 c) 16 d) 40
- 2) If $\frac{18}{24} = \frac{3}{a-1}$ what is the value of a ?
a) 6 b) 4 c) 5 d) 3
- 3) If $\frac{X}{Y} = \frac{3}{4}$, then $\frac{4X}{Y} = \dots\dots\dots$
a) $\frac{3}{4}$ b) 1 c) 3 d) $\frac{1}{3}$
- 4) If the length on drawing is 8 cm and the real length is 320 km , what is the scale drawing ?
a) 4,000,000 : 1 b) 1 : 400,00 c) 1 : 4,000,000 d) 1 : 40
- 5) If the length of an insect 0.3 mm and its length after magnification is 4.5 cm , what is the magnification ratio ?
a) 1 : 15 b) 15 : 1 c) 1 : 150 d) 150 : 1
- 6) Which of the following scale drawings represents a minimization ?
a) 1 : 7000 b) 70 : 1 c) 7000: 1 d) 500 : 1
- 7) If the scale drawing is 1 : 1000 the length in the drawing is 2.5 , then what is the real length in meters ?
a) 250 meters b) 25 meters c) 2.5 meters d) 0.25 meter
- 8) If $a : b = 3 : 7$, and $a + b = 40$ then the value of $b - a$ is
a) 16 b) 12 c) 14 d) 28

- 9) Yara has a meal in a restaurant , the price of the meal is 60 LE with an additional 14% task rate , what is the amount Yara paid ?
- a) 8.4 LE b) 51.6 LE c) 68.4 LE d) 16.8 LE
- 10) If $A = \{ 2, 5, 8 \}$, then which of the following is correct ?
- a) $\{ 2 \} \in A$ b) $\{ 3 \} \notin A$ c) $\{ 5 \} \subset A$ d) $\{ 5, 8 \} \not\subset A$
- 11) If $A = \{ 8, 9, 6 \}$, $B = \{ 2, 6, 7 \}$ then which express $A \cap B$?
- a) $\{ 6 \}$ b) $\{ 8, 9 \}$ c) $\{ 2, 6, 7, 8, 9 \}$ d) $\{ 2, 7 \}$
- 12) If $A = \{ 5, 7 \}$, then what is the number of all subsets of set A?
- a) 4 b) 6 c) 2 d) 8
- 13) If $\{ 3, 7, X, 6 \} = \{ 3, 6, Y, 5 \}$ then what is the value of $Y - X$?
- a) -12 b) -2 c) 2 d) 12
- 14) If $\{ 8, 2X \} = \{ 6, 8 \}$, then what is the value of X ?
- a) 4 b) 3 c) 6 d) 8
- 15) $Z \cup N = \dots\dots\dots$
- a) N b) Z c) \emptyset d) Q
- 16) $Z \cup Q = \dots\dots\dots$
- a) N b) Z c) \emptyset d) Q

17) $\{1, 2\}$ $\{2, 1\}$

- a) \in b) \subset c) $\not\subset$ d) \notin

18) \emptyset $\{1, 2\}$

- a) \in b) \subset c) $\not\subset$ d) \notin

19) $\frac{3}{4} + 50\% =$

- a) 75% b) 150% c) $\frac{3}{2}$ d) $\frac{5}{4}$

20) If $\frac{2}{3} \times X = \frac{5}{7} \times \frac{2}{3}$, then $X =$

- a) $\frac{3}{2}$ b) $\frac{2}{3}$ c) $\frac{5}{7}$ d) $\frac{7}{5}$

21) $\frac{3}{4}$ exceeds $\frac{3}{8}$ by the amount of =

- a) $\frac{3}{8}$ b) $-\frac{3}{8}$ c) $\frac{9}{8}$ d) $-\frac{9}{8}$

22) If 3 times a number is 27 the $\frac{1}{3}$ of this number =

- a) 3 b) $\frac{3}{2}$ c) $\frac{9}{4}$ d) 1

23) The constant term in the algebraic expression $2xy+3y-5$ is

- a) 5 b) $3y$ c) -5 d) $2xy$

24) The number of algebraic terms in $45 a b c$ is

- a) 1 b) 2 c) 3 d) 4

25) The like term to the term $a^2 b$ in the algebraic expression $b^2a-3ab+7ba^2$ is

- a) $b^2 a$ b) $-3ab$ c) $7ba^2$ d) None



26) $X + 5 > 6$ is

a) algebraic expression

b) equation

c) inequality

d) formula

27) The area of square = side \times side is

a) algebraic expression

b) equation

c) inequality

d) formula

28) $a + a + a =$

a) $3a$

b) $3 + a$

c) $3a^3$

d) a^3

29) $5x + (-3x) =$

a) $8x$

b) $2x$

c) $-2x$

d) $-8x$

30) Which of the following pairs of terms are like terms ?

a) $7x, 7$

b) x^2, y^2

c) $3a, 8a$

d) $2x, -2x^2$

31) What is the algebraic expression equivalent to $2y + 5 - 4y - 6$?

a) $2y + 1$

b) $-2y - 1$

c) $2y - 1$

d) $-2y + 1$

32) What is the simplest form of $7b + 4a - 2 - 2b - 3a + 2$?

a) $5b + a + 2$

b) $5b + 7a$

c) $5b + a$

d) $9b + 7a + 4$

33) What is the mathematical formula of the area (A) of a parallelogram with base length (L) and corresponding height (h) ?

a) $A = \frac{1}{2} L h$

b) $A = \frac{L}{h}$

c) Lh

d) $L + h$

34) What is the suitable equation to find the side length of an equilateral triangle whose perimeter 12 cm ?

a) $x + 3 = 12$

b) $3x = 12$

c) $x = 12$

d) $2x = 12$



- 35) what is the inequality expressing that the arithmetic mean of the two numbers X and Y is not less than 18
- a) $x + y > 18$ b) $x + y < 18$ c) $\frac{x+y}{2} \geq 18$ d) $\frac{x+y}{2} \leq 18$
- 36) The additive inverse of $7a - 2b + 9$ is
- a) $7a + 2b - 9$ b) $-7a + 2b - 9$ c) $-7a - 2b + 9$ d) $-7a + 2b + 9$
- 37) If $3(X-1) = 12$ then $5X =$
- a) 5 b) 10 c) 20 d) 25
- 38) If $2x = 2$, then $(3x-1) =$
- a) 1 b) 2 c) 3 d) 4
- 39) The consecutive two numbers whose sum is 29 , which of the following equation express that ?
- a) $x+x+2=29$ b) $x+x+1=29$ c) $x+x-1=28$ d) $x+x+1=30$
- 40) Ziad is x years old now , seven years ago he was 18 years old , which of the following represent the situation ?
- a) $x+7=18$ b) $x-7=11$ c) $x+7=25$ d) $x-7=18$
- 41) The solution set in Q $4(x-8) = 2x + 1$ for the equation is
- a) \emptyset b) $\{17\}$ c) $\{20\}$ d) $\{16\frac{1}{2}\}$
- 42) The solution set in Q $2(x-5) = 0$ for the equation
- a) $\{5\}$ b) $\{0\}$ c) $\{-5\}$ d) $\{10\}$
- 43) Which of the following doesn't have a solution set in Z ?
- a) $6x=12$ b) $6x=15$ c) $6x=24$ d) $6x=18$



Q2 Complete the following :-

1) $\frac{15}{X} = \frac{30}{12}$, X =

2) $7 : 8 = 21 : m$, m =

3) $\frac{16}{3X} = \frac{8}{12}$, X =

4) If 2 , 7 , X , 21 are proportion then X =

5) $\frac{14}{X} = \frac{y}{7}$, then xy =

6) If $\frac{K}{4} = 9$, then , the value of $\frac{1}{2} K - 7 =$

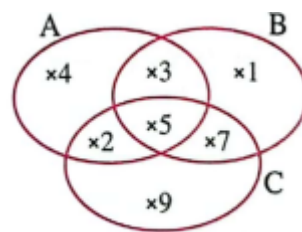
7) If the scale drawing is > 1 , it represents , but if the scale drawing is < 1 , it represents

8) If the length of an insect in the picture is 4 cm , and its real length is 2 mm , then the scale drawing =

- 9) If the scale on the map is 1 : 600,000 and the distance between two points on the map is 4.5 , then the real distance between the two points =
- 10) Malak drew a picture to her sister Farida , if the scale drawing is 1 : 4 and Farida's height is 160 cm , then Farida's height in the picture =
- 11) The ratio between two numbers 2 : 5 , if the smaller number is 48 , then the larger number is
- 12) 360 LE. were distributed between Yara and Maria in the ratio of 7 : 5 , then the ratio of each one is and
- 13) The ratio between the length of the sides in a triangle 3:4:5 , if its perimeter is 36 cm , then the length of the longest side is
- 14) If $\{ 6, Y + 2 \} = \{ 3, X - 2 \}$, then $X =$ and $Y =$
- 15) If $A \subset B$, then $A \cap B =$, $A \cup B =$
- 16) If $A = B$, then $A \cap B =$, $A \cup B =$
- 17) $A \cap \emptyset =$
- 18) $\emptyset \cup X =$
- 19) $A \cap A =$



20) If $X \cap Y = Y$, then \subset



21) From the opposite venn diagram ,

find

$$A \cap B = \dots\dots\dots$$

$$A \cap B \cap C = \dots\dots\dots$$

$$C \cup B = \dots\dots\dots$$

22) $-2 + (\dots\dots\dots + 5) = -2$

23) $0 + \dots\dots\dots = |-7|$

24) $-4 + \dots\dots\dots = -4$

25) The additive identity in \mathbb{Z} is

26) The additive inverse of 0 is

27) The result of subtracting -5 from 3 is

28) $-5 + 3 = 3 + (-5)$ (..... property)

29) $0 + (-7) = -7$ (..... property)

30) $-a + a = 0$ (..... property)

31) The multiplicative identity in \mathbb{Z} is

32) The product of two integers with different signs is a integer

33) $-7 \times \dots\dots\dots = -56$

34) If $a = 3$ and $b = -2$, then the value of $3ab = \dots\dots\dots$

35) $A \times (B+C) = \dots\dots\dots + A \times C$

36) If $a \times b = a$, then $b = \dots\dots\dots$

37) If $a \div b = a$, then $b = \dots\dots\dots$

38) If $X = |-4|$ and $Y = -1$, then $XY = \dots\dots\dots$

- 39) $|-0.4| = \dots\dots\dots \%$
- 40) $\frac{5}{8} = \dots\dots\dots$ (in decimal form)
- 41) The additive inverse of $\frac{-6}{-11}$ is $\dots\dots\dots$
- 42) The additive inverse of $|- \frac{3}{5}|$ is $\dots\dots\dots$
- 43) If $\frac{a}{b}$ is a rational number , then $b \neq \dots\dots\dots$
- 44) The multiplicative identity in \mathbb{Q} is $\dots\dots\dots$
- 45) The multiplicative inverse of $-3\frac{1}{2}$ is $\dots\dots\dots$
- 46) The multiplicative inverse of 0.5 is $\dots\dots\dots$
- 47) The multiplicative inverse of 1 is $\dots\dots\dots$
- 48) The multiplicative inverse of -1 is $\dots\dots\dots$
- 49) The rational number $\frac{a-1}{5}$ has a multiplicative inverse if $a \neq \dots\dots\dots$
- 50) The rational number that does not have a multiplicative inverse is $\dots\dots\dots$
- 51) The result of subtracting $\frac{1}{7}$ from $\frac{8}{7} = \dots\dots\dots$
- 52) $2\frac{3}{5} \times \dots\dots\dots = 1$
- 53) $-\frac{4}{9} \times \dots\dots\dots = 1$
- 54) $\dots\dots\dots \times 0.8 = 1$
- 55) $-3y+5y-6$ in the simplest form is $\dots\dots\dots$
- 56) The result of subtracting $2b$ from $5b$ is $\dots\dots\dots$
- 57) The algebraic term that if added to $-7m$, the result will be $-9m$ is $\dots\dots\dots$
- 58) The algebraic term $-3y$ exceeds the algebraic term $2y$ by $\dots\dots\dots$
- 59) The algebraic term $8k$ is less than the algebraic term $-3k$ by $\dots\dots\dots$



- 60) $5k - 3(2k - 4) = \dots\dots\dots$
- 61) $-4a - 3b + 5c - 4b - 3a + c = \dots\dots\dots$
- 62) Subtract $2x + 6y - 7$ from $2x - 5y + 2$
- 63) What is the increase of $7a - 8b + 4c$ than $-3a - 5c + b$?
- 64) What is the decrease of $-4x - 3y + 8$ than $7 + 3x + y$?
- 65) The solution set of the equation $3x - 1 = 4$ in N is $\dots\dots\dots$
- 66) If X is an integer , then the next even integer is $\dots\dots\dots$
- 67) If the sum of two numbers is 15 , one of them is y then the other one is $\dots\dots\dots$
- 68) Two integers whose difference is 7 , if the smaller one is m , then the larger one is $\dots\dots\dots$
- 69) If the perimeter of square is (P) , then the side length is $\dots\dots\dots$
- 70) If $2x + 3 = 1$, then the value of $x - 7$ is $\dots\dots\dots$
- 71) If $\frac{m}{3} = 7$, then the value of $m - 19$ is $\dots\dots\dots$
- 72) When 5 is added to a number , the result is (-3) , the equation is $\dots\dots\dots$
- 73) 15 is subtracted from twice a number the result is 12 , the equation is $\dots\dots\dots$

Q3 Answer the following :-

- 1) Does the ratio 4:10 and 2:5 represent a proportion or not?
Explain.
- 2) If $\frac{m}{20} = \frac{4}{y}$ find the value of $2(m \times y)$
- 3) Write three different ratios equivalent to 7:5
- 4) Seif bought 8 apples for 60 L.E. , how many apples of the same type can he buy for 105 L.E. ?
- 5) A car uses 5 liters of petrol to cover a distance of 40 km , how much petrol would the car to cover the distance 128 km if it travel at the same rate ?



- 6) A man wants to divide 8,000 LE. among his three sons in the ratio of 1 : 2 : 5 , find the ratio of each one .
- 7) A sum of money was divided among three persons in the ratio of 4 : 2 : 1 , if the share of the first person exceeds the share of the third person by 900 LE , find the share of each one.
- 8) A watch was offered with a discount rate is 25% off during a sale , if the price of the watch was 720 LE , what is the price of the watch after the discount ?

9) Use the properties of addition & multiplication to find :-

a. $-5 + (-13) + 5$

b. $3 \times (-2) + 3 \times 5$

c. $(-2) \times (-25) \times (-50) \times 4$

d. 15×9

e. $\frac{5}{12} \times 3 + \frac{5}{12} \times 9$

f. $\frac{-4}{10} + \frac{1}{4} + \frac{2}{10} + \frac{-1}{4}$



10) If $a = 15$ and $b = -5$, find the result of the following :-

a) $|9 - a|$

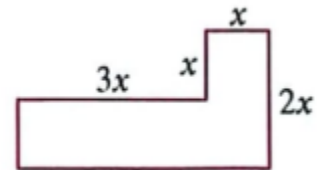
b) $a - b$

11) Express the each of following mathematically

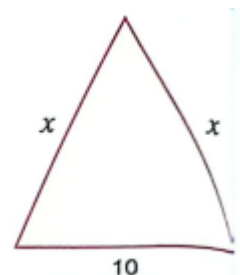
- a) A rectangle with dimensions X and Y whose area is 36 square centimeters
- b) The area of square A with side length L is
- c) Double the number x added to 5 is equal to 1 is

12) from the opposite figure

- a) Mathematical expression is
- b) simplest form
- c) numerical value of the perimeter at $x=5$ is



13) The perimeter of the opposite triangle is 34 cm, then what is the value of x .



- 14)** Two natural numbers , one of them is three times the other and their sum is 60 , what are the two numbers ?
- 15)** What is the number , that if it is subtracted from three times itself the result will be 14 ?
- 16)** The sum of three consecutive odd numbers is 87 , what are these numbers
- 17)** Farida is three years older than Malak , and the sum of their ages is 25 years. how old is each of them ?

Statistical

Q1 Choose the correct answer

- 1) Which of the following represent categorical data
a) bar graph b) histogram c) stem - leaf d) both a , b
- 2) In a survey of 2000 girls about their preferred hobby , as shown in the opposite pie chart ,

First; what is the most preferred hobby ?

- a) drawing b) music
c) reading d) swimming



Second; what is the measure of central angle corresponding to the reading sector ?

- a) 35° b) 45°
c) 104° d) 86°
- 3) For a set of values , if $\bar{X} = 20$ and $\Sigma (f.X) = 1500$, what is the value of Σf ?
- a) 75 b) 150 c) 3000 d) 30,000

- 4) When representing the following table using a pie chart , what is the measure of the central angle corresponding to the coffee sector ?

Drink	Coffee	Tea	Juices
People	150	350	100

- a) 90° b) 45°
c) 150° d) 120°

Q2 Complete the following :-

- 1) The arithmetic mean of numbers 3,0,9,8,5 is
- 2) The arithmetic mean of numbers X , 1, 7 , 8 , 9 , 7 , 8 , 2 is 6 , then X
- 3) For a set of data , if : $\Sigma f = 15$, $\bar{X} = 4$ what is the value of $\Sigma (f.X)$?
- 4) The third quartile of the values 16 , 10 , 14 , 11 , 12 , 15 is

Q3 Answer the following :-

- 1) The following frequency table represents a student's daily pocket money over two weeks , find the average daily pocket money .

Daily pocket money X	25	29	34	39	55
Number of days F	3	5	3	2	1

- 2) The opposite stem-and-leaf plot represents the total scores of some students , find :-

- a) The mode =
 b) The median =
 c) The first quartile =
 d) The third quartile =
 e) The range =

stems	leaves		
1	3	5	6
2	2	2	1
3	5	1	
4	4	3	1

- 3) in the favorite sport of 160 students is shown in the opposite table , represent this data using a pie chart .

Sports	Handball	Basketball	football	Volleyball
Percentage	15 %	25 %	45 %

- 4) in a survey of a group of people were asked their favorite sports , the results were as follows :

Sports	Football	Swimming	Volleyball	Karate
Frequency	96	16	16	32

represent this data using a pie chart .

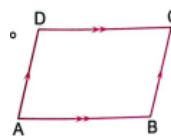
Geometry

Q1 / Choose the correct answer :-

- 1) If A supplements B and A supplements C , then B and C are
a) supplementary b) complementary c) adjacent d) equal in measure
- 2) If $m(\angle A) = (\angle B)$ and $\angle A$ supplements $\angle B$, then what is the measure of $\angle B$
a) 30° b) 45° c) 60° d) 90°
- 3) If $BA \perp BC$, what is the measure of angle $\angle ABC$
a) 40° b) 90° c) 180° d) 360°
- 4) $m(\angle A) + m(\text{reflex } \angle A)$ equals the measure of
a) right angle b) 2 right angles c) 3 right angles d) 4 right angles
- 5) The angle of measure 60° has a vertically opposite angle with a measure of
a) 30° b) 45° c) 60° d) 90°
- 6) The sum of measures of angles around a point equals the sum of
a) 5 right angle b) 2 right angles c) 3 right angles d) 4 right angles
- 7) The sum of measures of 4 angles around a point is the sum of measures of 5 angles around a point .
a) $<$ b) $>$ c) $=$ d) \neq
- 8) If the ratio among three angles around a point is $4 : 3 : 2$ then the measure of the greatest angle is
a) 40° b) 80° c) 120° d) 160°



- 9) If the sum of the measures of two angles in triangle is 150° then what is the measure of the third angle ?
a) 40° b) 30° c) 50° d) 20°
- 10) The sum of measures of the interior angles of a triangle equals the measure of
a) a right angle b) a straight angle c) a reflex angle d) an acute angle
- 11) The triangle consists of two angles at least .
a) right b) straight c) reflex d) acute
- 12) Which of the following sets of numbers cannot be used as side lengths of a triangle ?
a) 4cm,7cm,7cm b) 3cm,4cm,7cm c) 7cm,7cm,7cm d) 9cm,7cm,5cm
- 13) The lengths of of two sides of an isosceles triangle are 3cm and 7cm , what is the length of the third side ?
a) 3cm b) 7cm c) 5cm d) 5cm
- 14) The sum of lengths of any two sides in a triangle the lengths of the third side .
a) smaller than b) greater than c) half d) equal
- 15) In the opposite figure if $m(\angle A) + (\angle C) = 140^\circ$, then what is the measure of $\angle B$?
a) 70° b) 40° c) 110° d) 220°
- 16) The diagonals of a rectangle are
a) perpendicular b) equal in length
c) perpendicular and equal in length d) bisect the interior angles



17) The diagonals of a rhombus are

- a) perpendicular and unequal in length b) equal in length and not perpendicular
c) perpendicular and equal in length d) unequal in length and not perpendicular

18) The diagonals of a square are

- a) only perpendicular b) only equal in length
c) perpendicular and equal in length d) neither equal in length nor perpendicular

19) Which of the following sets of quadrilaterals have all their sides equal in length ?

- a) {square, rectangle} b) {square, rhombus}
c) {trapezium, rhombus} d) {rhombus, rectangle}

20) If two adjacent sides of a parallelogram are equal in length then the shape become

- a) a square b) a rhombus c) a rectangle d) a trapezium

21) Which of the following angles must be one of the interior angles of a polygon to be concave

- a) straight b) right c) acute d) reflex

22) How many axes of symmetry does a regular polygon with 9 sides have ?

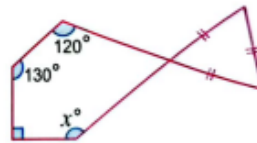
- a) 9 b) 7 c) 18 d) 11

23) What is the measure of the interior angle of a regular polygon with 10 sides ?

- a) 135° b) 144° c) 108° d) 120°

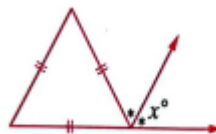


- 24) from the opposite figure ,
what is the value of X ?



- a) 110° b) 140° c) 130° d) 120°

- 25) From the opposite figure ,
what is the value of X ?



- a) 30° b) 60° c) 180° d) 120°

- 26) In which quadrant the point located (3, -4) ?

- a) 1st quadrant b) 2nd quadrant c) 3rd quadrant d) 4th quadrant

- 27) Which of the following points does not lie on Y-axis?

- a) (0,-5) b) (0,0) c) (3,0) d) (0,2)

- 28) If the point (3,k-2) lie on X-axis , what is the value of k ?

- a) -3 b) -2 c) 3 d) 2

- 29) If $X < 0$, $Y > 0$ in which quadrant is the point (x,y) locate ?

- a) 1st quadrant b) 2nd quadrant c) 3rd quadrant d) 4th quadrant

- 30) What is the projection of point (-3,5) on Y-axis is

- a) (0,5) b) (-3,0) c) (3,-5) d) (-3,5)

- 31) If the origin of the midpoint of AB A (5,-2) then B is

- a) (2,5) b) (5,-2) c) (-2,-5) d) (-5,2)

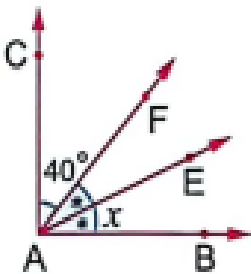
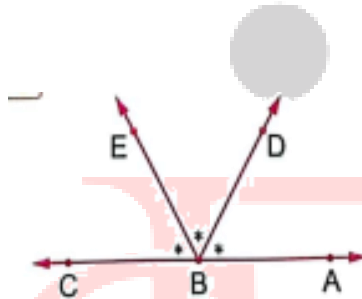
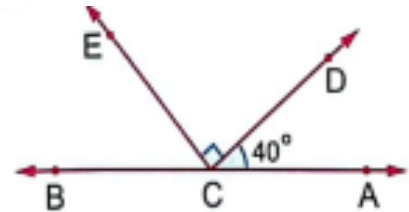
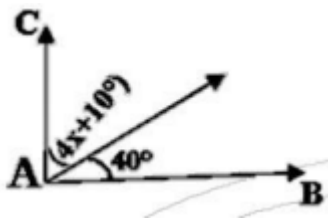
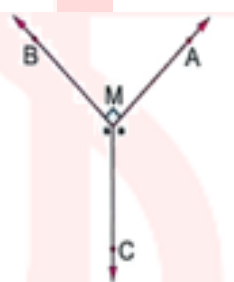
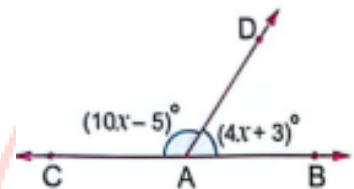
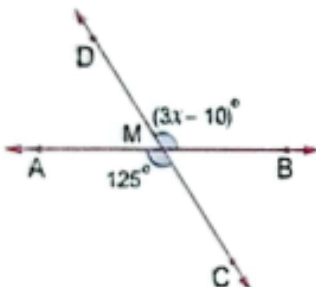
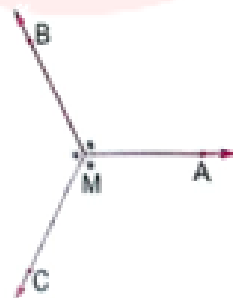
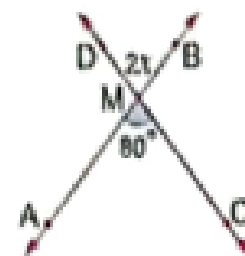


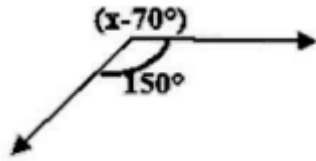
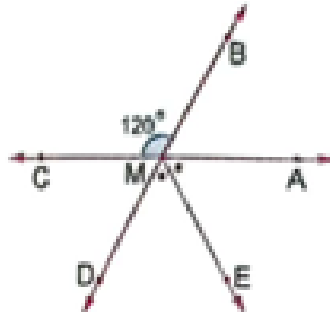
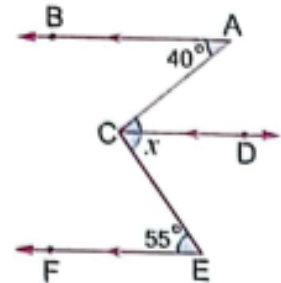
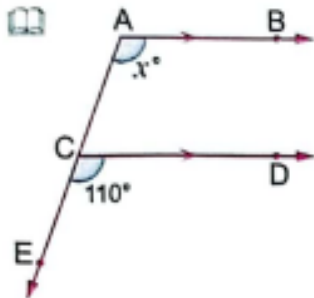
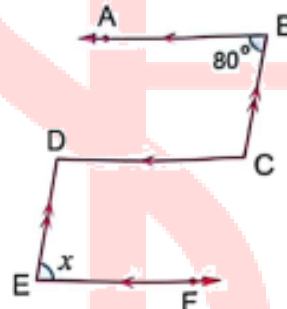
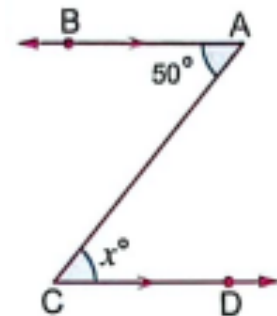
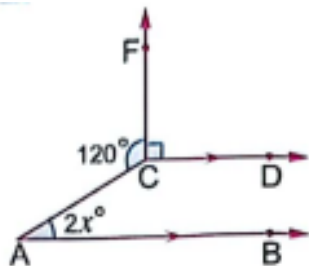
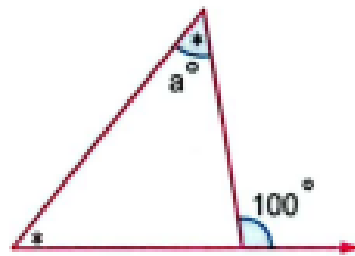
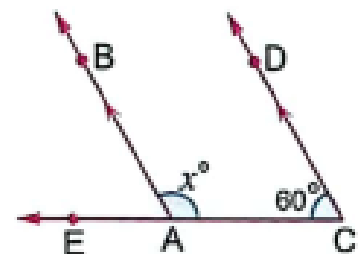
Q2 / Complete the following :-

- 1) The two adjacent angles whose outer sides are perpendicular are
- 2) The two adjacent angles whose outer sides lie on a straight line are
- 3) If the adjacent angles are supplementary , their outer sides are
- 4) If $m(\angle A) = 50^\circ$, then $m(\text{reflex } \angle A) = \dots\dots^\circ$
- 5) The angle that measures 50° complements an angle whose measure is $\dots\dots^\circ$ and supplements an angle whose measure is $\dots\dots^\circ$
- 6) An acute angle is complemented by an angle that is a and supplemented by an angle that is
- 7) A zero angle is complemented by an angle that is a and supplemented by an angle that is
- 8) A right angle is complemented by an angle that is a and supplemented by an angle that is
- 9) An obtuse angle supplements an angle that is
- 10) If $m(\angle A) = 30^\circ$ and $(\angle A)$ complements $(\angle B)$ then $m(\text{reflex } \angle B) = \dots\dots^\circ$
- 11) Complementary angles that are equal in measure have a measure of $\dots\dots^\circ$
- 12) If $\angle A$ and $\angle B$ are supplementary angles and $m(\angle A) = 2 m(\angle B)$ then $m(\angle B) = \dots\dots^\circ$

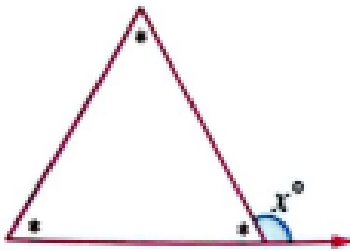
- 13) If $\angle A$ complements $\angle B$ and $m(\angle A) = \frac{2}{3} m(\angle B)$ then $m(\angle B) = \dots\dots^{\circ}$
- 14) If a straight line perpendicular to one of two parallel straight lines then its to other in the plane.
- 15) If two straight lines are parallel to a third straight line , then they are
- 16) If a straight line intersects two parallel straight lines , then any two alternate angles are
- 17) If a straight line intersects two parallel straight lines , then any two corresponding angles are
- 18) If a straight line intersects two parallel straight lines , then any two interior angles are
- 19) The sum of measures of the interior angles of a triangle = $\dots\dots^{\circ}$
- 20) The measure of the exterior angle of any triangle equals the sum of
- 21) In triangle ABC , if $m(\angle A) = 70^{\circ}$ and $m(\angle B) = 50^{\circ}$, then $m(\angle C) = \dots\dots^{\circ}$
- 22) If the measures of the three angles in a triangle are equal , then the measure of each angle is $\dots\dots^{\circ}$
- 23) If the length of two sides of triangle are 5cm and 2cm , then the largest integer that can represent the length of the third side is
- 24) If the length of two sides of triangle are 5cm and 7cm , then the smallest integer that can represent the length of the third side is
- 25) Number of diagonals of in a pentagon is

- 26) The sum of measures of the interior angles of a hexagon =^o
- 27) The sum of measures of the interior angles of a heptagon =^o
- 28) The number of axes of symmetry of a square is
- 29) The number of axes of symmetry of a parallelogram is
- 30) If $a > 0$ then the point $(-2a, a+1)$ lies in the quadrant.
- 31) If $(4-2k, 3k+9)$ lies on the X-axis , then $k =$
- 32) If A $(3k-6, 4k)$ lies on the Y-axis , then the coordinate of A (..... ,).
- 33) The projection of point $(3,0)$ on the axis is itself.
- 34) The projection of point $(0,10)$ on the axis is the origin.
- 35) If AB is perpendicular to Y-axis , the length of its projection on the Y-axis is
- 36) If A $(2,-3)$ and B $(4,7)$, then the coordinate of the midpoint of AB is
- 37) If the origin of the midpoint of AB A $(2,Y)$, B $(X,-3)$, then $(X,Y) =$

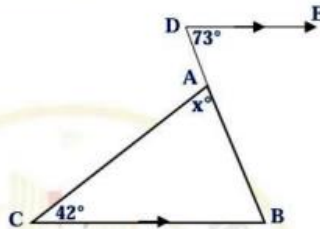
Q3 / Answer the following :-1) find value of X 2) find $m(\angle CBE)$ 3) find $m(\angle ECB)$ 4) find value of X 5) find $m(\angle BMC)$ 6) find value of X 7) find value of X 8) find $m(\angle BMA)$ 9) find value of X 

10) find value of X 11) find $m(\angle BMA)$ 12) find value of X 13) find value of X 14) find value of X 15) find value of X 16) find value of X 17) find value of a 18) find value of X 

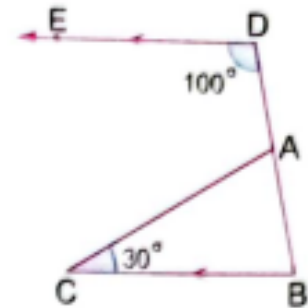
19) find value of X



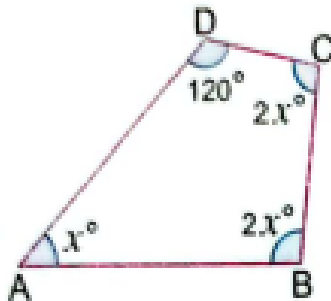
20) find value of X



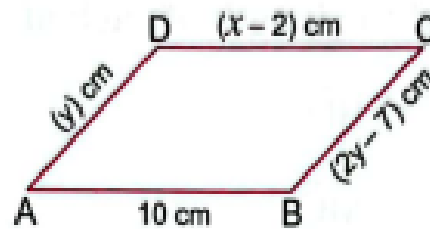
21) find m ($\angle CAB$)



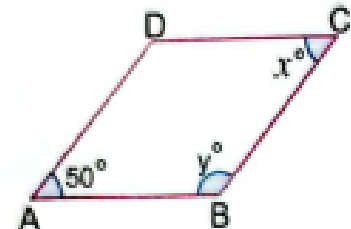
22) find value of X



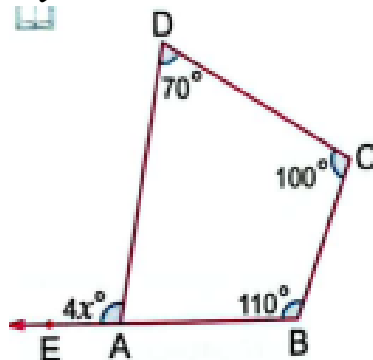
23) find value of X,Y



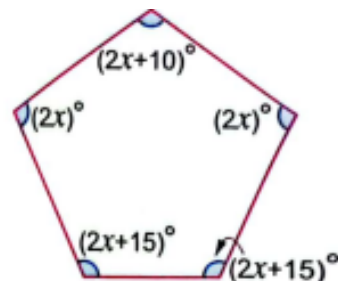
24) find value of X,Y



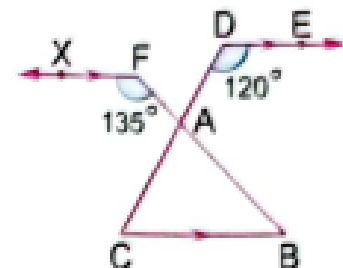
25) find value of X



26) find value of X



27) find m ($\angle CAB$)

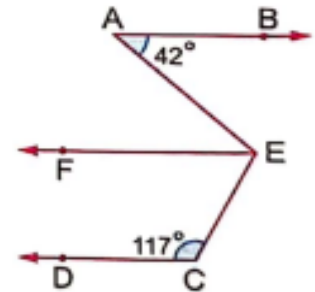


28)

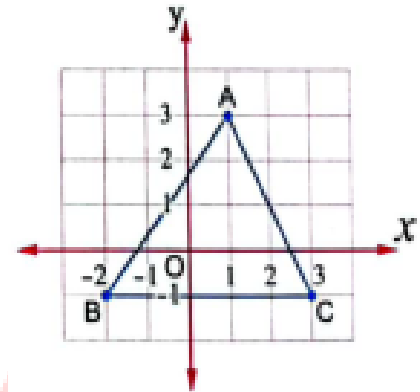
In the opposite figure :

$$\overline{AB} \parallel \overline{CD}, \overline{EF} \parallel \overline{CD}$$

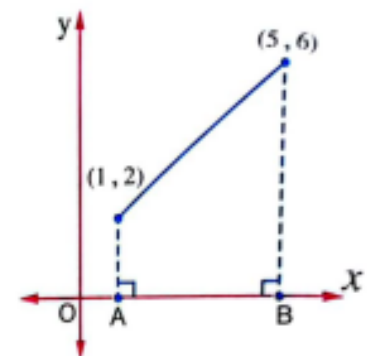
$$, m(\angle A) = 42^\circ, m(\angle C) = 117^\circ$$

Find by proof : $m(\angle AEC)$ 

29) From the opposite graph :-
Determine the coordinates of vertices of the triangle ABC , and calculate its area .



30) From the opposite graph :-
What is the distance between the points A and B ?



31) Draw a triangle with the side lengths 7cm , 5cm , 4cm

32) Determine the length of the projection of line segment AB on the X-axis of the points A (-2,1) B (3,6) .

33) Plot the points A (-2,-1) , B (3,-10) , C (3,2) , D (-2,2) on the coordinate plane , what is the type of the shape and its area ?

Answers**Algebra****Q1 Choose the correct answer**

1) If $\frac{8}{x} = 0.5$, then $X = \dots\dots\dots$

- a) 8 b) 4 **c) 16** d) 40

2) If $\frac{18}{24} = \frac{3}{a-1}$ what is the value of a ?

- a) 6 b) 4 **c) 5** d) 3

3) If $\frac{X}{Y} = \frac{3}{4}$, then $\frac{4X}{Y} = \dots\dots\dots$

- a) $\frac{3}{4}$ b) 1 **c) 3** d) $\frac{1}{3}$

4) If the length on drawing is 8 cm and the real length is 320 km , what is the scale drawing ?

- a) 4,000,000 : 1 b) 1 : 400,00 **c) 1 : 4,000,000** d) 1 : 40

5) If the length of an insect 0.3 mm and its length after magnification is 4.5 cm , what is the magnification ratio ?

- a) 1 : 15 b) 15 : 1 c) 1 : 150 **d) 150 : 1**

6) Which of the following scale drawings represents a minimization ?

- a) 1 : 7000** b) 70 : 1 c) 7000: 1 d) 500 : 1

7) If the scale drawing is 1 : 1000 the length in the drawing is 2.5 , then what is the real length in meters ?

- a) 250 meters **b) 25 meters** c) 2.5 meters d) 0.25 meter

8) If $a : b = 3 : 7$, and $a + b = 40$ then the value of $b - a$ is

- a) 16** b) 12 c) 14 d) 28

- 9) Yara has a meal in a restaurant , the price of the meal is 60 LE with an additional 14% task rate , what is the amount Yara paid ?
a) 8.4 LE b) 51.6 LE c) 68.4 LE d) 16.8 LE
- 10) If $A = \{ 2, 5, 8 \}$, then which of the following is correct ?
a) $\{2\} \in A$ b) $\{3\} \notin A$ c) $\{5\} \subset A$ d) $\{5, 8\} \not\subset A$
- 11) If $A = \{ 8, 9, 6 \}$, $B = \{ 2, 6, 7 \}$ then which express $A \cap B$?
a) $\{ 6 \}$ b) $\{8, 9\}$ c) $\{ 2, 6, 7, 8, 9 \}$ d) $\{2, 7\}$
- 12) If $A = \{ 5, 7 \}$, then what is the number of all subsets of set A?
a) 4 b) 6 c) 2 d) 8
- 13) If $\{ 3, 7, X, 6 \} = \{ 3, 6, Y, 5 \}$ then what is the value of $Y - X$?
a) -12 b) -2 c) 2 d) 12
- 14) If $\{ 8, 2X \} = \{ 6, 8 \}$, then what is the value of X ?
a) 4 b) 3 c) 6 d) 8
- 15) $Z \cup N = \dots\dots\dots$
a) N b) Z c) \emptyset d) Q
- 16) $Z \cup Q = \dots\dots\dots$
a) N b) Z c) \emptyset d) Q
- 17) $\{ 1, 2 \} \dots\dots\dots \{ 2, 1 \}$
a) \in b) \subset c) $\not\subset$ d) \notin

18) \emptyset $\{1, 2\}$

a) \in

b) \subset

c) \nsubseteq

d) \notin

19) $\frac{3}{4} + 50\% =$

a) 75%

b) 150%

c) $\frac{3}{2}$

d) $\frac{5}{4}$

20) If $\frac{2}{3} \times X = \frac{5}{7} \times \frac{2}{3}$, then $X =$

a) $\frac{3}{2}$

b) $\frac{2}{3}$

c) $\frac{5}{7}$

d) $\frac{7}{5}$

21) $\frac{3}{4}$ exceeds $\frac{3}{8}$ by the amount of =

a) $\frac{3}{8}$

b) $-\frac{3}{8}$

c) $\frac{9}{8}$

d) $-\frac{9}{8}$

22) If 3 times a number is 27 the $\frac{1}{3}$ of this number =

a) 3

b) $\frac{3}{2}$

c) $\frac{9}{4}$

d) 1

23) The constant term in the algebraic expression $2xy + 3y - 5$ is

a) 5

b) $3y$

c) -5

d) $2xy$

24) The number of algebraic terms in $45abc$ is

a) 1

b) 2

c) 3

d) 4

25) The like term to the term a^2b in the algebraic expression $b^2a - 3ab + 7ba^2$ is

a) b^2a

b) $-3ab$

c) $7ba^2$

d) None

26) $X + 5 > 6$ is

a) algebraic expression

b) equation

c) inequality

d) formula



27) The area of square = side \times side is

a) algebraic
expression

b) equation

c) inequality

d) formula

28) $a + a + a =$

a) $3a$

b) $3 + a$

c) $3a^3$

d) a^3

29) $5x + (-3x) =$

a) $8x$

b) $2x$

c) $-2x$

d) $-8x$

30) Which of the following pairs of terms are like terms ?

a) $7x, 7$

b) x^2, y^2

c) $3a, 8a$

d) $2x, -2x^2$

31) What is the algebraic expression equivalent to $2y + 5 - 4y - 6$?

a) $2y + 1$

b) $-2y - 1$

c) $2y - 1$

d) $-2y + 1$

32) What is the simplest form of $7b + 4a - 2 - 2b - 3a + 2$?

a) $5b + a + 2$

b) $5b + 7a$

c) $5b + a$

d) $9b + 7a + 4$

33) What is the mathematical formula of the area (A) of a parallelogram with base length (L) and corresponding height (h) ?

a) $A = \frac{1}{2} L h$

b) $A = \frac{L}{h}$

c) Lh

d) $L + h$

34) What is the suitable equation to find the side length of an equilateral triangle whose perimeter 12 cm ?

a) $x + 3 = 12$

b) $3x = 12$

c) $x = 12$

d) $2x = 12$

35) what is the inequality expressing that the arithmetic mean of the two numbers X and Y is not less than 18

a) $x + y > 18$

b) $x + y < 18$

c) $\frac{x+y}{2} \geq 18$

d) $\frac{x+y}{2} \leq 18$



36) The additive inverse of $7a - 2b + 9$ is

- a) $7a + 2b - 9$ b) $-7a + 2b - 9$ c) $-7a - 2b + 9$ d) $-7a + 2b + 9$

37) If $3(X-1) = 12$ then $5X =$

- a) 5 b) 10 c) 20 d) 25

38) If $2x = 2$, then $(3x-1) =$

- a) 1 b) 2 c) 3 d) 4

39) The consecutive two numbers whose sum is 29 , which of the following equation express that ?

- a) $x+x+2=29$ b) $x+x+1=29$ c) $x+x-1=28$ d) $x+x+1=30$

40) Ziad is x years old now , seven years ago he was 18 years old , which of the following represent the situation ?

- a) $x+7=18$ b) $x-7=11$ c) $x+7=25$ d) $x-7=18$

41) The solution set in \mathbb{Q} $2(x-5) = 0$ for the equation

- a) $\{5\}$ b) $\{0\}$ c) $\{-5\}$ d) $\{10\}$

42) Which of the following doesn't have a solution set in \mathbb{Z} ?

- a) $6x=12$ b) $6x=15$ c) $6x=24$ d) $6x=18$

43) If $5 = 3X - 1$, what is the value of $2X + 3$?

- a) 2 b) 3 c) 5 d) 7



Q2 Complete the following :-

1) $\frac{15}{X} = \frac{30}{12}$, $X = 6$

2) $7 : 8 = 21 : m$, $m = 24$

3) $\frac{16}{3X} = \frac{8}{12}$, $X = 8$

4) If 2 , 7 , X , 21 are proportion then $X = 6$

5) $\frac{14}{X} = \frac{y}{7}$, then $xy = 98$

6) If $\frac{K}{4} = 9$, then , the value of $\frac{1}{2} K - 7 = 11$

7) If the scale drawing is > 1 , it represents magnification, but if the scale drawing is < 1 , it represents minimization

8) If the length of an insect in the picture is 4 cm , and its real length is 2 mm , then the scale drawing = 20 : 1



- 9) If the scale on the map is 1 : 600,000 and the distance between two points on the map is 4.5 , then the real distance between the two points = 27 km
- 10) Malak drew a picture to her sister Farida , if the scale drawing is 1 : 4 and Farida's height is 160 cm , then Farida's height in the picture = 40 cm
- 11) The ratio between two numbers 2 : 5 , if the smaller number is 48 , then the larger number is 120
- 12) 360 LE. were distributed between Yara and Maria in the ratio of 7 : 5 , then the ratio of each one is 210 and 150
- 13) The ratio between the length of the sides in a triangle 3:4:5 ,if its perimeter is 36 cm ,then the length of the longest side is 15
- 14) If $\{ 6, Y + 2 \} = \{ 3, X - 2 \}$, then $X = 8$ and $Y = 1$
- 15) If $A \subset B$, then $A \cap B = A$, $A \cup B = B$
- 16) If $A = B$, then $A \cap B = A$ or B , $A \cup B = A$ or B
- 17) $A \cap \emptyset = \emptyset$

18) $\emptyset \cup X = X$

19) $A \cap A = A$

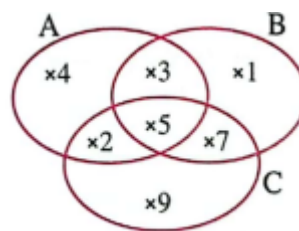
20) If $X \cap Y = Y$, then $Y \subset X$

21) From the opposite venn diagram, find

$$A \cap B = \{3, 5\}$$

$$A \cap B \cap C = \{5\}$$

$$C \cup B = \{1, 2, 3, 5, 7, 9\}$$



22) $-2 + (-5 + 5) = -2$

23) $0 + 7 = |-7|$

24) $-4 + 0 = -4$

25) The additive identity in \mathbb{Z} is 0

26) The additive inverse of 0 is 0

27) The result of subtracting -5 from 3 is 8

28) $-5 + 3 = 3 + (-5)$ (commutative property)

29) $0 + (-7) = -7$ (additive identity property)

30) $-a + a = 0$ (additive inverse property)

31) The multiplicative identity in \mathbb{Z} is 1

32) The product of two integers with different signs is a negative integer

33) $-7 \times 8 = -56$

34) If $a = 3$ and $b = -2$, then the value of $3ab = -18$



- 35) $A \times (B+C) = A \times B + A \times C$
- 36) If $a \times b = a$, then $b = 1$
- 37) If $a \div b = a$, then $b = 1$
- 38) If $X = |-4|$ and $Y = -1$, then $XY = -4$
- 39) $|-0.4| = 40\%$
- 40) $\frac{5}{8} = 0.625$ (in decimal form)
- 41) The additive inverse of $\frac{-6}{-11}$ is $-\frac{6}{11}$
- 42) The additive inverse of $|- \frac{3}{5}|$ is $-\frac{3}{5}$
- 43) If $\frac{a}{b}$ is a rational number , then $b \neq 0$
- 44) The multiplicative identity in \mathbb{Q} is 1
- 45) The multiplicative inverse of $-3\frac{1}{2}$ is $-\frac{2}{7}$
- 46) The multiplicative inverse of 0.5 is 2
- 47) The multiplicative inverse of 1 is 1
- 48) The multiplicative inverse of -1 is -1
- 49) The rational number $\frac{a-1}{5}$ has a multiplicative inverse if $a \neq 0$
- 50) The rational number that does not have a multiplicative inverse is 0
- 51) The result of subtracting $\frac{1}{7}$ from $\frac{8}{7} = 1$
- 52) $2\frac{3}{5} \times \frac{5}{13} = 1$
- 53) $-\frac{4}{9} \times -\frac{9}{4} = 1$
- 54) $\frac{5}{4} \times 0.8 = 1$
- 55) $-3y+5y-6$ in the simplest form is $2y -6$
- 56) The result of subtracting $2b$ from $5b$ is $3b$



- 57) The algebraic term that if added to $-7m$, the result will be $-9m$ is $-2m$
- 58) The algebraic term $-3y$ exceeds the algebraic term $2y$ by $-5y$
- 59) The algebraic term $8k$ is less than the algebraic term $-3k$ by $-11k$
- 60) $5k - 3(2k - 4) = -1k + 12$
- 61) $-4a - 3b + 5c - 4b - 3a + c = -7a - 7b + 6c$
- 62) Subtract $2x + 6y - 7$ from $2x - 5y + 2 = -11y + 9$
- 63) What is the increase of $7a - 8b + 4c$ than $-3a - 5c + b$?
 $10a - 9b + 9c$
- 64) What is the decrease of $-4x - 3y + 8$ than $7 + 3x + y$?
 $-7x - 4y + 1$
- 65) The solution set of the equation $3x - 1 = 4$ in N is \emptyset
- 66) If X is an integer, then the next even integer is $X+2$
- 67) If the sum of two numbers is 15, one of them is y then the other one is $15-y$
- 68) Two integers whose difference is 7, if the smaller one is m , then the larger one is $7+m$
- 69) If the perimeter of square is (P) , then the side length is $P \div 4$
- 70) If $2x + 3 = 1$, then the value of $x - 7$ is -8
- 71) If $\frac{m}{3} = 7$, then the value of $m - 19$ is 2
- 72) When 5 is added to a number, the result is (-3) , the equation is $5+X=-3$
- 73) 15 is subtracted from twice a number the result is 12, the equation is $2X-15=12$

Q3 Answer the following :-

1) Does the ratio 4:10 and 2:5 represent a proportion or not?

Explain. Yes , because $\frac{4}{10} = \frac{2}{5}$

2) If $\frac{m}{20} = \frac{4}{y}$ find the value of $2(m \times y)$, $2(20 \times 4) = 160$

3) Write three different ratios equivalent to 7:5 , 14:10 , 21:15 , 28:20

4) Seif bought 8 apples for 60 L.E. , how many apples of the same type can he buy for 105 L.E. ? $\frac{8 \times 105}{60} = 14$

5) A car uses 5 liters of petrol to cover a distance of 40 km , how much petrol would the car to cover the distance 128 km if it travel at the same rate ? $\frac{5 \times 128}{40} = 16$

6) A man wants to divide 8,000 LE. among his three sons in the ratio of 1 : 2 : 5 , find the ratio of each one .

1st : 2nd : 3rd : total

1 : 2 : 5 : 8

? : ? : ? : 8000

$$1^{\text{st}} = \frac{1 \times 8000}{8} = 1000$$

$$2^{\text{nd}} = \frac{2 \times 8000}{8} = 2000$$

$$3^{\text{rd}} = \frac{5 \times 8000}{8} = 5000$$

- 7) A sum of money was divided among three persons in the ratio of 4 : 2 : 1 , if the share of the first person exceeds the share of the third person by 900 LE , find the share of each one.

1st : 2nd : 3rd : difference

4 : 2 : 1 : 3

? : ? : ? : 900

$$1^{\text{st}} = \frac{4 \times 900}{3} = 1200$$

$$2^{\text{nd}} = \frac{2 \times 900}{3} = 600$$

$$3^{\text{rd}} = \frac{1 \times 900}{3} = 300$$

Note
the difference
between

$$3^{\text{rd}} \text{ and } 1^{\text{st}} = 4 - 1 =$$

- 8) A watch was offered with a discount rate is 25% off during a sale , if the price of the watch was 720 LE , what is the price of the watch after the discount ?

Price before : discount : price after

100% : 25% : 75%

720 : : ?

$$\text{Price after discount} = \frac{75 \times 720}{100} = 540 \text{ LE}$$

9) Use the properties of addition & multiplication to find :-

a. $-5 + (-13) + 5$

$$-5 + 5 - 13 \quad (\text{commutative})$$

$$(-5 + 5) - 13 \quad (\text{associative})$$

$$0 - 13 \quad (\text{add. inverse})$$

$$= -13 \quad (\text{add. identity})$$

b. $3 \times (-2) + 3 \times 5$ (distributive)

$$3 \times (-2 + 5)$$

$$= 3 \times 3 = 9$$

c. $(-2) \times (-25) \times (-50) \times 4$

$$-2 \times -50 \times 4 \times -25 \quad (\text{commutative})$$

$$(-2 \times -50) \times (4 \times -25) \quad (\text{associative})$$

$$100 \times -100 = -10000$$

d. 15×9 (distributive)

$$15 \times (10 - 1)$$

$$(15 \times 10) - (15 \times 1)$$

$$150 - 15 = 135$$

e. $\frac{5}{12} \times 3 + \frac{5}{12} \times 9$ (distributive)

$$\frac{5}{12} \times (3 + 9)$$

$$\frac{5}{12} \times 12 = 5$$

f. $\frac{-4}{10} + \frac{1}{4} + \frac{2}{10} + \frac{-1}{4}$

$$\frac{-4}{10} + \frac{2}{10} + \frac{1}{4} + \frac{-1}{4} \quad (\text{commutative})$$

$$\left(\frac{-4}{10} + \frac{2}{10} \right) + \left(\frac{1}{4} + \frac{-1}{4} \right) \quad (\text{associative})$$

$$\frac{-2}{10} + 0 \quad (\text{add. inverse})$$

$$= \frac{-2}{10} \quad (\text{add. identity})$$

10) If $a = 15$ and $b = -5$, find the result of the following :-

$$\begin{aligned} \text{b)} \quad & |9 - a| \\ & |9 - 15| \\ & |-6| = 6 \end{aligned}$$

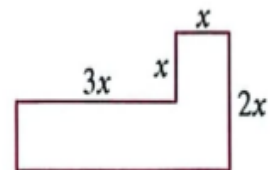
$$\begin{aligned} \text{b)} \quad & a - b \\ & 15 - (-5) = 20 \end{aligned}$$

11) Express the each of following mathematically

- d) A rectangle with dimensions X and Y whose area is 36 square centimeters $XY = 36$
- e) The area of square A with side length L is L^2
- f) Double the number x added to 5 is equal to 1 is $2X + 5 = 1$

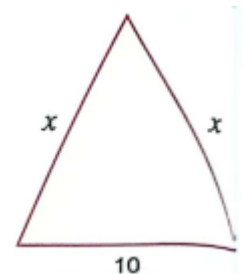
12) from the opposite figure

- d) Mathematical expression is $3X + X + X + 2X + 4X + X$
- e) simplest form $12X$
- f) numerical value of the perimeter at $x=5$ is $12 \times 5 = 60$



13) The perimeter of the opposite triangle is 34 cm, then what is the value of x.

$$(34 - 10) \div 2 = 12$$



- 14) Two natural numbers , one of them is three times the other and their sum is 60 , what are the two numbers ?

Suppose the 1st number is X , the other is $3X$

$$X + 3X = 60$$

$$4X = 60$$

$$X = 60 \div 4 = 15$$

$$1^{\text{st}} = 15 \quad , \quad 2^{\text{nd}} = 3 \times 15 = 45$$

- 15) What is the number , that if it is subtracted from three times itself the result will be 14 ?

$$3X - X = 14$$

$$2X = 14$$

$$X = 7$$

- 16) The sum of three consecutive odd numbers is 87 , what are these numbers

Three numbers are X , $X + 2$, $X + 4$

$$X + X + 2 + X + 4 = 87$$

$$3X + 6 = 87$$

$$3X = 87 - 6$$

$$3X = 81$$

$$X = 81 \div 3 = 27$$

Three numbers are , 27 , 29 , 31

- 17) Farida is three years older than Malak , and the sum of their ages is 25 years. how old is each of them ?

age of Farida is X , age of Malak is $X - 3$, the sum = 25

$$X + X - 3 = 25 \quad , \quad 2X - 3 = 25 \quad , \quad 2X = 28 \quad , \quad X = 14$$

age of Farida is 14 , age of Malak is $14 - 3 = 11$

Statistical

Q1 Choose the correct answer

- 1) Which of the following represent categorical data
a) bar graph b) histogram c) stem - leaf d) both a , b

- 2) In a survey of 2000 girls about their preferred hobby , as shown in the opposite pie chart ,

First; what is the most preferred hobby ?

- a) drawing b) music
c) reading d) swimming



Second; what is the measure of central angle corresponding to the reading sector ?

- a) 35° b) 45°
c) 104° d) 86°

- 3) For a set of values , if $\bar{X} = 20$ and $\Sigma (f.X) = 1500$, what is the value of Σf ?

- a) 75 b) 150 c) 3000 d) 30,000

- 4) When representing the following table using a pie chart , what is the measure of the central angle corresponding to the coffee sector ?

Drink	Coffee	Tea	Juices
People	150	350	100

a) 90°

b) 45°

c) 150°

d) 120°

Q2 Complete the following :-

- 1) The arithmetic mean of numbers 3,0,9,8,5 is $\frac{3+0+9+8+5}{5} = 5$
- 2) The arithmetic mean of numbers X , 1 , 7 , 8 , 9 , 7 , 8 , 2 is 6 , then X

$$\frac{x + 1 + 7 + 8 + 9 + 7 + 8 + 2}{8} = 6$$

$$\frac{x + 42}{8} = 6$$

$$X = 8 \times 6 - 42 = 6$$

- 3) For a set of data , if : $\Sigma f = 15$, $\bar{X} = 4$ what is the value of $\Sigma (f.X)$?

$$\bar{X} = \frac{\Sigma (f.X)}{\Sigma f} = 4 = \frac{\Sigma (f.X)}{15} = \Sigma (f.X) = 15 \times 4 = 60$$

- 4) The third quartile of the values 16 , 10 , 14 , 11 , 12 , 15 is

$$\frac{12 + 14}{2} = 13$$

Q3 Answer the following :-

- 1) The following frequency table represents a student's daily pocket money over two weeks , find the average daily pocket money .

Daily pocket money X	25	29	34	39	55
Number of days F	3	5	3	2	1

$$\bar{X} = \frac{\Sigma (f.X)}{\Sigma f} = \frac{455}{14} = 32.5$$

x	f	x.f
25	3	75
29	5	145
34	3	102
39	2	78
55	1	55
Total	14	455

- 2) The opposite stem-and-leaf plot represents the total scores of some students , find :-

stems	leaves
1	3 5 6
2	2 2 1
3	5 1
4	4 3 1

values are / 13 , 15 , 16 , 22 , 22 , 21 , 35 , 31 , 44 , 43 , 41

a)The mode = 22

b)The median = 21

c)The first quartile = 16

d)The third quartile = 44

e)The range = 28

- 3) in the favorite sport of 160 students is shown in the opposite table , represent this data using a pie chart .

Sports	Handball	Basketball	football	Volleyball
Percentage	15 %	25 %	45 %

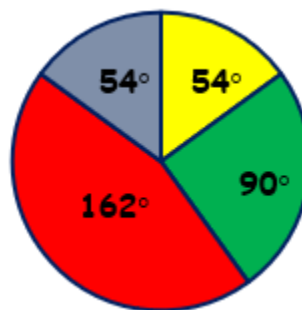
percent of volley ball = $100 - (15+25+45) = 15\%$

$$15\% \times 360^\circ = 54^\circ$$

$$25\% \times 360^\circ = 90^\circ$$

$$45\% \times 360^\circ = 162^\circ$$

$$15\% \times 360^\circ = 54^\circ$$



- 4) in a survey of a group of people were asked their favorite sports , the results were as follows :

Sports	Football	Swimming	Volleyball	Karate
Frequency	96	16	16	32

represent this data using a pie chart .

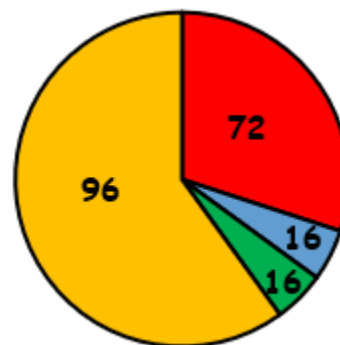
Total values = $96+16+16+32 = 160$

$$\text{Football} = \frac{96}{160} \times 360^\circ = 216^\circ$$

$$\text{Swimming} = \frac{16}{160} \times 360^\circ = 36^\circ$$

$$\text{Volleyball} = \frac{16}{160} \times 360^\circ = 36^\circ$$

$$\text{Karate} = \frac{32}{160} \times 360^\circ = 72^\circ$$



Geometry

Q1 / Choose the correct answer :-

- 1) If A supplements B and A supplements C , then B and C are
- a) supplementary b) complementary c) adjacent **d) equal in measure**
- 2) If $m(\angle A) = (\angle B)$ and $\angle A$ supplements $\angle B$, then what is the measure of $\angle B$
- a) 30° b) 45° c) 60° **d) 90°**
- 3) If $BA \perp BC$, what is the measure of angle $\angle ABC$
- a) 40° **b) 90°** c) 180° d) 360°
- 4) $m(\angle A) + m(\text{reflex } \angle A)$ equals the measure of
- a) right angle b) 2 right angles c) 3 right angles **d) 4 right angles**
- 5) The angle of measure 60° has a vertically opposite angle with a measure of
- a) 30° b) 45° **c) 60°** d) 90°
- 6) The sum of measures of angles around a point equals the sum of
- a) 5 right angle b) 2 right angles c) 3 right angles **d) 4 right angles**
- 7) The sum of measures of 4 angles around a point is the sum of measures of 5 angles around a point .
- a) $<$ b) $>$ **c) $=$** d) \neq

8) If the ratio among three angles around a point is 4 : 3 : 2 then the measure of the greatest angle is

- a) 40° b) 80° c) 120° d) 160°

9) If the sum of the measures of two angles in triangle is 150° then what is the measure of the third angle ?

- a) 40° b) 30° c) 50° d) 20°

10) The sum of measures of the interior angles of a triangle equals the measure of

- a) a right angle b) a straight angle c) a reflex angle d) an acute angle

11) The triangle consists of two angles at least .

- a) right b) straight c) reflex d) acute

12) Which of the following sets of numbers cannot be used as side lengths of a triangle ?

- a) 4cm, 7cm, 7cm b) 3cm, 4cm, 7cm c) 7cm, 7cm, 7cm d) 9cm, 7cm, 5cm

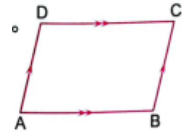
13) The lengths of two sides of an isosceles triangle are 3cm and 7cm , what is the length of the third side ?

- a) 3cm b) 7cm c) 5cm d) 5cm

14) The sum of lengths of any two sides in a triangle the lengths of the third side .

- a) smaller than b) greater than c) half d) equal





15) In the opposite figure if $m(\angle A) + (\angle C) = 140^\circ$, then what is the measure of $\angle B$?

- a) 70° b) 40° c) 110° d) 220°

16) The diagonals of a rectangle are

- a) perpendicular b) equal in length
c) perpendicular and equal in length d) bisect the interior angles

17) The diagonals of a rhombus are

- a) perpendicular and unequal in length b) equal in length and not perpendicular
c) perpendicular and equal in length d) unequal in length and not perpendicular

18) The diagonals of a square are

- a) only perpendicular b) only equal in length
c) perpendicular and equal in length d) neither equal in length nor perpendicular

19) Which of the following sets of quadrilaterals have all their sides equal in length ?

- a) {square, rectangle} b) {square, rhombus}
c) {trapezium, rhombus} d) {rhombus, rectangle}

20) If two adjacent sides of a parallelogram are equal in length then the shape become

- a) a square b) a rhombus c) a rectangle d) a trapezium

21) Which of the following angles must be one of the interior angles of a polygon to be concave

- a) straight b) right c) acute d) reflex

22) How many axes of symmetry does a regular polygon with 9 sides have ?

a) 9

b) 7

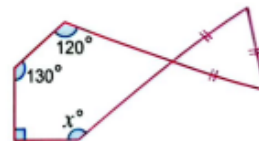
c) 18

d) 11

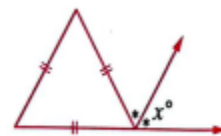
23) What is the measure of the interior angle of a regular polygon with 10 sides ?

a) 135° b) 144° c) 108° d) 120°

24) from the opposite figure ,
what is the value of X ?

a) 110° b) 140° c) 130° d) 120°

25) From the opposite figure ,
what is the value of X ?

a) 30° b) 60° c) 180° d) 120°

26) In which quadrant the point located (3, -4) ?

a) 1st quadrantb) 2nd quadrantc) 3rd quadrantd) 4th quadrant

27) Which of the following points does not lie on Y-axis?

a) (0,-5)

b) (0,0)

c) (3,0)

d) (0,2)

28) If the point (3,k-2) lie on X-axis , what is the value of k ?

a) -3

b) -2

c) 3

d) 2



29) If $X < 0$, $Y > 0$ in which quadrant is the point (x,y) located ?

- a) 1st quadrant b) 2nd quadrant c) 3rd quadrant d) 4th quadrant

30) What is the projection of point $(-3,5)$ on Y-axis is

-
a) $(0,5)$ b) $(-3,0)$ c) $(3,-5)$ d) $(-3,5)$

31) If the origin of the midpoint of AB A $(5,-2)$ then B is

-
a) $(2,5)$ b) $(5,-2)$ c) $(-2,-5)$ d) $(-5,2)$

Q2 / Complete the following :-

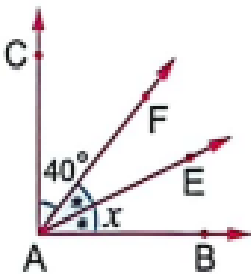
- 1) The two adjacent angles whose outer sides are perpendicular are complementary
- 2) The two adjacent angles whose outer sides lie on a straight line are supplementary
- 3) If the adjacent angles are supplementary, their outer sides are on a straight line
- 4) If $m(\angle A) = 50^\circ$, then $m(\text{reflex } \angle A) = 310^\circ$
- 5) The angle that measures 50° complements an angle whose measure is 40° and supplements an angle whose measure is 130°
- 6) An acute angle is complemented by an angle that is an acute and supplemented by an angle that is obtuse
- 7) A zero angle is complemented by an angle that is a right and supplemented by an angle that is straight
- 8) A right angle is complemented by an angle that is a zero and supplemented by an angle that is right
- 9) An obtuse angle supplements an angle that is acute
- 10) If $m(\angle A) = 30^\circ$ and $(\angle A)$ complements $(\angle B)$ then $m(\text{reflex } \angle B) = 300^\circ$
- 11) Complementary angles that are equal in measure have a measure of 90°
- 12) If $\angle A$ and $\angle B$ are supplementary angles and $m(\angle A) = 2 m(\angle B)$ then $m(\angle B) = 60^\circ$

- 13)** If $\angle A$ complements $\angle B$ and $m(\angle A) = \frac{2}{3} m(\angle B)$ then $m(\angle B) = 54^\circ$
- 14)** If a straight line perpendicular to one of two parallel straight lines then its perpendicular to other in the plane.
- 15)** If two straight lines are parallel to a third straight line , then they are parallel
- 16)** If a straight line intersects two parallel straight lines , then any two alternate angles are equal in measure
- 17)** If a straight line intersects two parallel straight lines , then any two corresponding angles are equal in measure
- 18)** If a straight line intersects two parallel straight lines , then any two interior angles are supplementary
- 19)** The sum of measures of the interior angles of a triangle = 180°
- 20)** The measure of the exterior angle of any triangle equals the sum of two non adjacent angles
- 21)** In triangle ABC , if $m(\angle A) = 70^\circ$ and $m(\angle B) = 50^\circ$, then $m(\angle C) = 60^\circ$
- 22)** If the measures of the three angles in a triangle are equal , then the measure of each angle is 60°
- 23)** If the length of two sides of triangle are 5cm and 2cm , then the largest integer that can represent the length of the third side is 6cm
- 24)** If the length of two sides of triangle are 5cm and 7cm , then the smallest integer that can represent the length of the third side is 3cm
- 25)** Number of diagonals of in a pentagon is 2

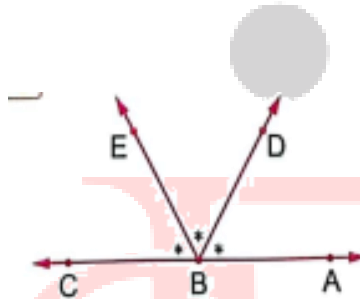
- 26)** The sum of measures of the interior angles of a hexagon = 720°
- 27)** The sum of measures of the interior angles of a heptagon = 900°
- 28)** The number of axes of symmetry of a square is 4
- 29)** The number of axes of symmetry of a parallelogram is 0
- 30)** If $a > 0$ then the point $(-2a, a+1)$ lies in the second quadrant.
- 31)** If $(4-2k, 3k+9)$ lies on the X-axis, then $k = -3$
- 32)** If A $(3k-6, 4k)$ lies on the Y-axis, then the coordinate of A $(0, 8)$.
- 33)** The projection of point $(3,0)$ on the X-axis is itself.
- 34)** The projection of point $(0,10)$ on the X-axis is the origin.
- 35)** If AB is perpendicular to Y-axis, the length of its projection on the Y-axis is a point
- 36)** If A $(2,-3)$ and B $(4,7)$, then the coordinate of the midpoint of AB is $(3,2)$
- 37)** If the origin of the midpoint of AB A $(2,Y)$, B $(X,-3)$, then $(X,Y) = (-2,3)$

Q3 / Answer the following :-

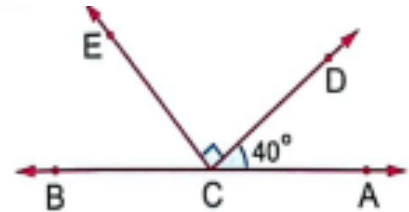
1) find value of X
=25



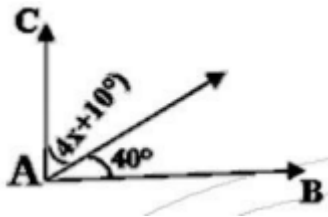
2) find $m(\angle CBE)$
=60°



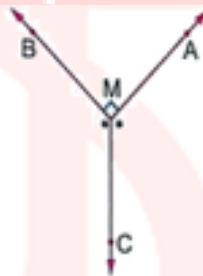
3) find $m(\angle ECB)$
=50°



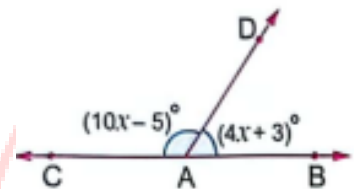
4) find value of X
=10



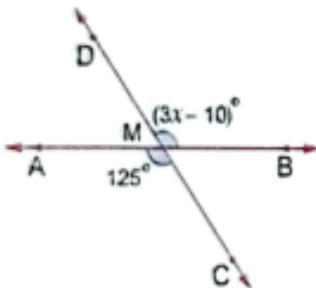
5) find $m(\angle BMC)$
=135°



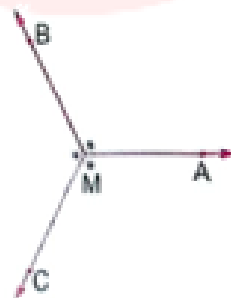
6) find value of X
=13



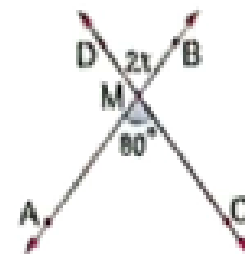
7) find value of X
=45



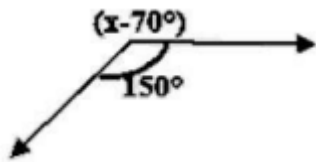
8) find $m(\angle BMA)$
=120°



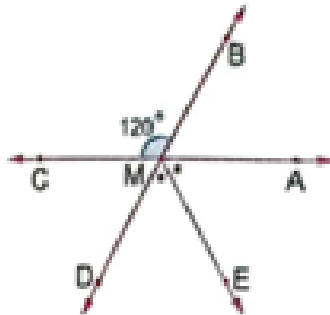
9) find value of X
=40°



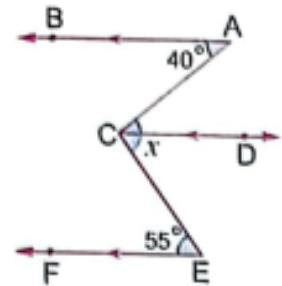
10) find value of X
=280



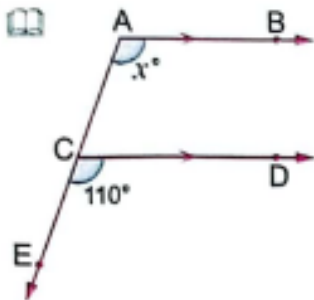
11) find $m(\angle AME)$
=60°



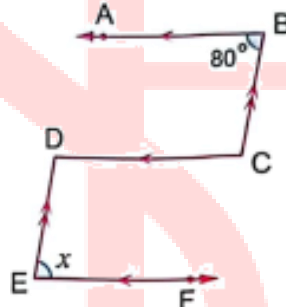
12) find value of X
=40+55=95



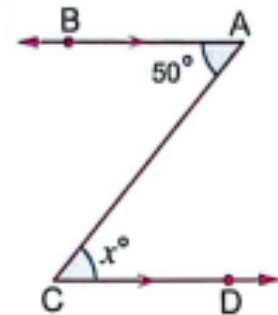
13) find value of X
=110°



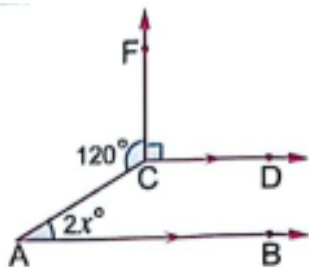
14) find value of X
=80



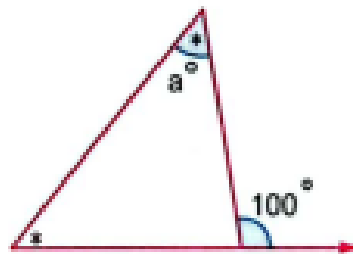
15) find value of X
=50°



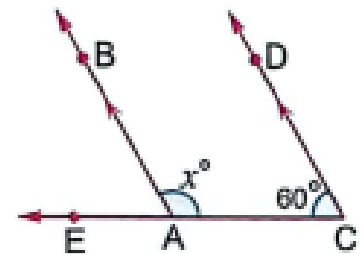
16) find value of X
=15



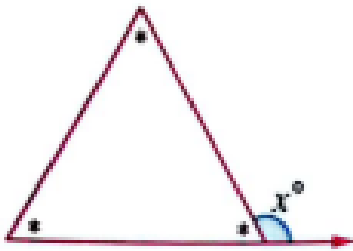
17) find value of a
=50°



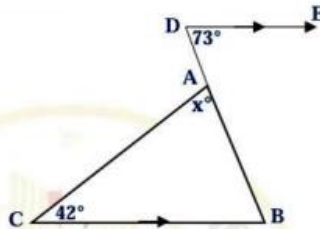
18) find value of X
=120°



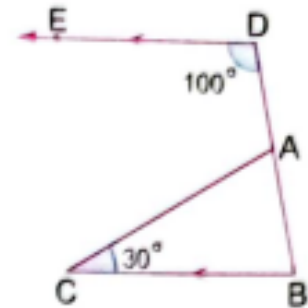
19) find value of X
 $= 120^\circ$



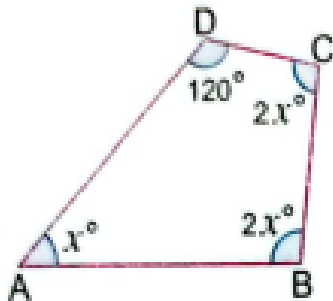
20) find value of X
 $= 65^\circ$



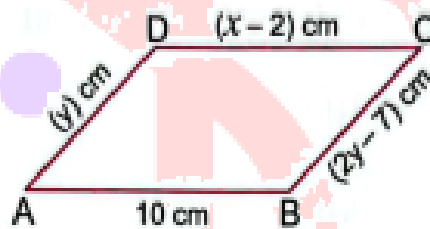
21) find $m(\angle CAB)$
 $= 50^\circ$



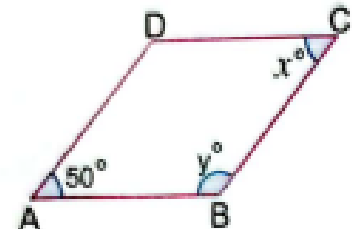
22) find value of X
 $= 48^\circ$



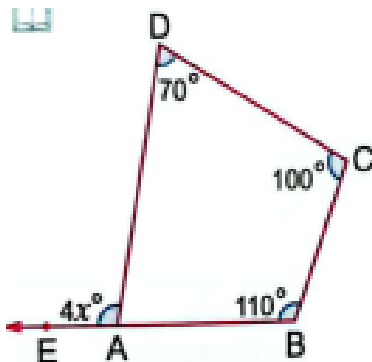
23) find value of X, Y
 $X = 12, Y = 7$



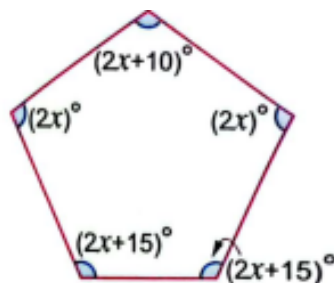
24) find value of X, Y
 $X = 50, Y = 130$



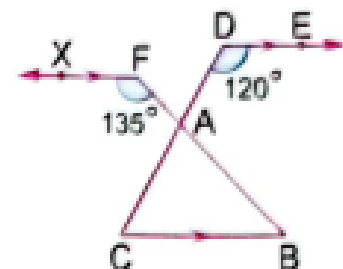
25) find value of X
 $= 25^\circ$



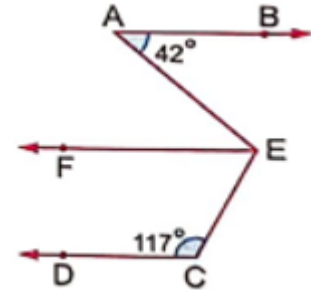
26) find value of X
 $= 50$



27) find $m(\angle CAB)$
 $= 75^\circ$



28)

 $\therefore AB \parallel CD, EF \parallel CD$ $\therefore AB \parallel EF$ $\therefore m(\angle FEA) = m(\angle BAE) = 42^\circ$ (alternate angles) $\therefore EF \parallel CD$ $\therefore m(\angle FEC) + m(\angle ECD) = 180^\circ$ (interior angles) $\therefore m(\angle FEC) = 180 - 117 = 63^\circ$ $\therefore m(\angle AEC) = 42 + 63 = 105^\circ$ 

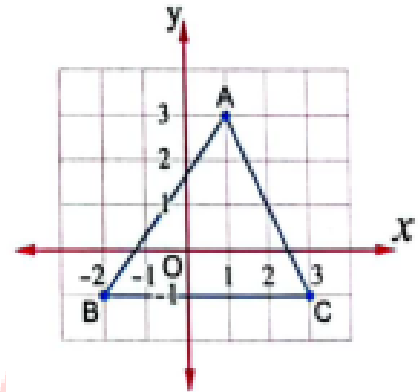
29) From the opposite graph :-

Determine the coordinates of vertices of the triangle ABC, and calculate its area.

A (1, 3)

B (-2, -1)

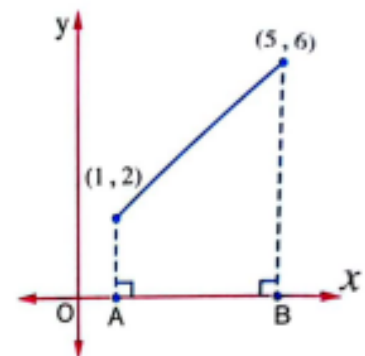
C (3, -1)



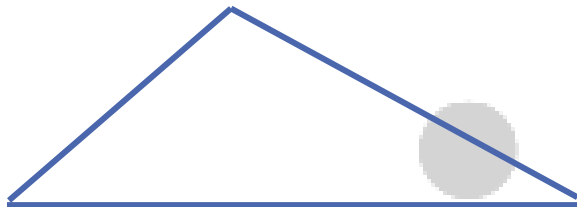
30) From the opposite graph :-

What is the distance between the points A and B?

$$|5 - 1| = 4 \text{ units}$$



31) Draw a triangle with the side lengths 7cm , 5cm , 4cm



32) Determine the length of the projection of line segment AB on the X-axis of the points A (-2,1) B (3,6) .

Projection of point A is (-2,0)

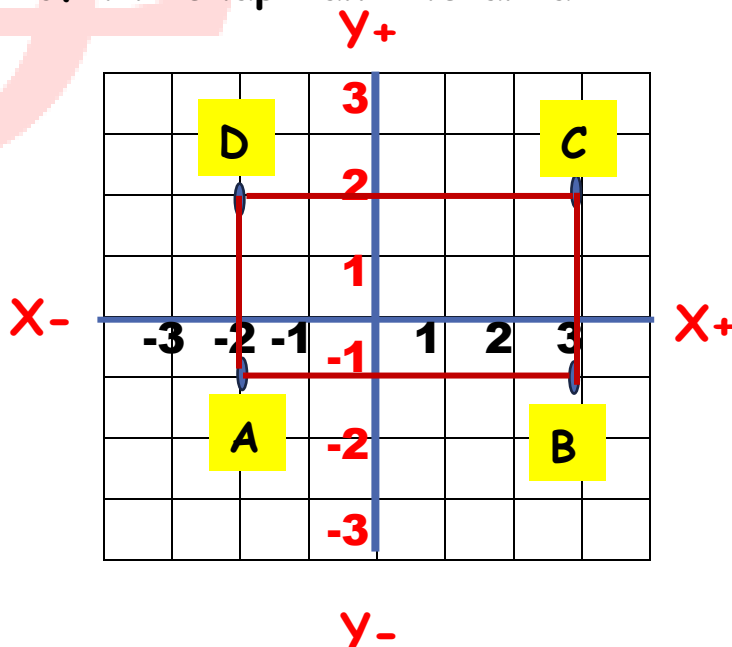
Projection of point B is (3,0)

Length of projection of AB = $|3| + |-2| = 5$ units

33) Plot the points A (-2,-1) , B (3,-1) , C (3,2) , D (-2,2) on the coordinate plane , what is the type of the shape and its area ?


the shape is a rectangle

its area = $(3+5) \times 2 = 16\text{cm}^2$



المراجعة رقم 4

Q1 Choose the correct answer from the given ones

- 1 If $\{3, 6, 7, x\} = \{6, y, 3, 5\}$, then what is the value of $y - x$?
 (a) -12 (b) -2 (c) 2 (d) 12
- 2 If the length in the drawing is 2 cm and the real length is 6 meters, what is the scale drawing ?
 (a) 1 : 3 (b) 1 : 30 (c) 1 : 300 (d) 1 : 3,000
- 3 If $\frac{-5}{12} - \left(\frac{-7}{6}\right) = \frac{1}{6} + x$, then what is the value of x ?
 (a) $\frac{7}{12}$ (b) $\frac{5}{6}$ (c) $-\frac{5}{12}$ (d) $-\frac{7}{12}$
- 4 Omar bought 6 apples for 105 L.E. How many apples of the same type can he buy for 245 L.E ?
 (a) 12 (b) 14 (c) 18 (d) 20
- 5 If the scale of a map is as shown in the opposite figure and the distance between two cities on this map is 3 cm, what is the actual distance between them ?

 (a) 30 km (b) 1,200,000 cm (c) 90 km (d) 90,000 cm
- 6 A piece of land measuring 36 feddans was divided between two people in the ratio of 7 : 2
 Which of the following could be the share of one of the people ?
 (a) 4 feddans (b) 14 feddans (c) 18 feddans (d) 28 feddans
- 7 What is the multiplicative inverse of $-3\frac{1}{2}$?
 (a) $-\frac{7}{2}$ (b) $-2\frac{1}{3}$ (c) $-\frac{2}{7}$ (d) $\frac{2}{7}$
- 8 Which of the following operations has the same result : $2\frac{2}{3} \div (-1\frac{3}{7})$?
 (a) $2\frac{2}{3} + 1\frac{3}{7}$ (b) $2\frac{2}{3} \times (-1\frac{7}{3})$ (c) $-1\frac{3}{7} + 2\frac{2}{3}$ (d) $-2\frac{2}{3} \times \frac{7}{10}$

- 9 If 15 % of x equals 20 % of y , what is the ratio of $x : y$?
 (a) 5 : 4 (b) 3 : 2 (c) 4 : 3 (d) 3 : 4
- 10 If $A = \{ 5 , 7 \}$, how many subsets does the set A have ?
 (a) 2 (b) 4 (c) 6 (d) 8
- 11 If $A = \{ 4 , 2 , 7 \}$, and $B \subset A$ so which of the following can represent set B ?
 (a) $\{ 4 , 6 \}$ (b) $\{ 1 , 3 , 5 \}$ (c) $\{ 4 , 3 , 7 \}$ (d) $\{ 7 , 2 \}$
- 12 Which of the following products has a negative sign ?
 (a) $- 3 \times (- 9)$ (b) $- 2 \times 5$ (c) $0 \times (- 5)$ (d) $- 1 \times (- 1)$
- 13 If $X \in \{ 2 , 5 , 8 \}$, what is the value that x cannot equal ?
 (a) 2 (b) 3 (c) 5 (d) 8
- 14 If the number of elements in $A \cup B$ is 5 , the number of elements in A cannot be
 (a) 3 (b) 4 (c) 5 (d) 6
- 15 If the price of an item decreased from 1,500 L.E to 1,200 L.E , what is the discount rate ?
 (a) 3 % (b) 15 % (c) 20 % (d) 30 %
- 16 Two friends participated in a business project with a profit - sharing ratio of 2 : 5 If the smaller share of the profits is 18,000 L.E .
 What is the total profit in L.E ?
 (a) 45,000 L.E (b) 63,000 L.E (c) 9,000 L.E (d) 24,000 L.E
- 17 If $x : 36 = 25 : 20$, then what is the value of x ?
 (a) 14 (b) 28.8 (c) 45 (d) 60
- 18 If $A = \{ 2 , 5 , 8 \}$, then which statement is correct ?
 (a) $\{ 2 \} \in A$ (b) $\{ 3 \} \notin A$ (c) $\{ 5 \} \subset A$ (d) $\{ 5 , 8 \} \not\subset A$

- 19 A dolphin dove from the surface of the water to a depth of $3\frac{1}{4}$ meters , then dove another $2\frac{1}{4}$ meters . Which of the following does not represent the dolphin's position relative to the surface of the water ?

Ⓐ $-3\frac{1}{4} + (-2\frac{1}{2})$

Ⓑ $-3\frac{1}{4} + |-2\frac{1}{2}|$

Ⓒ $-3\frac{1}{4} - 2\frac{1}{2}$

Ⓓ $-(3\frac{1}{4} + 2\frac{1}{2})$

Q2 Answer the following questions

- 1 Four persons purchased tickets to the Egyptian Museum in Cairo

They also purchased souvenirs for 500 L.E , if the total cost is 620 L.E , write the equation expressing this situation .

- What is the price of one ticket ?

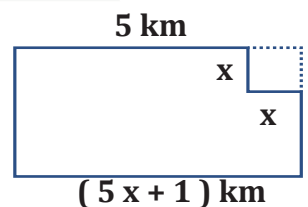
- 2 A man passed away , leaving 150,000 L.E for his wife , two sons , and one daughter . if his wife's share $\frac{1}{8}$ of the total amount , and the remaining sum is to be distributed among his children .

- What is the share of each son and the daughter , considering the ratio of a son to a daughter is 2 : 1 ?

- 3 In light of State's focus on expanding agricultural land

, a rectangular desert plot has been reclaimed .

from this plot , a square area with side length x km has been devoted to creat a farm for development of animal wealth .



- What is the value of x in kilometers ?

4 Three persons participated in a project with a capital of 750 , 000 L.E
It was divided in the ratio 4 : 5 : 3

- Calculate the share of each person in the capital ?

5 Sandy received a 15 % discount on the price of a pair of athletic shoes from a store , and she paid 340 L.E

- What was the original price of the shoes ?

6 An amount 7,200 L.E was divided among three people in the ratio of 5 : 4 : 3

- Find each person's share

7 Three persons invested in the construction of a factory . The first person paid 9,000,000 L.E , the second person paid 6,000,000 L.E , and the third person paid 7,500,000 L.E .

At the end of the first year , the profits amounted to 2,250,000 L.E , and the profits were distributed based on each person's capital contribution .

- Calculate the share of the first year's profit for each person

Q3 Choose the correct answer from the given ones

- 1 If the actual length is 90 meters and scale is 1 : 10,000 , what is the length in the drawing in centimeters ?
 (a) 0.09 cm (b) 90 cm (c) 9 cm (d) 0.9 cm
- 2 If $\frac{5}{7} = \frac{30}{x+1}$, then what is the value of x ?
 (a) 40 (b) 41 (c) 42 (d) 43
- 3 Eman reads 10 pages in 40 minutes . How much time , in hours , would it take her to read a book if 120 pages if she reads at the same rate ?
 (a) 8 (b) 16 (c) 80 (d) 480
- 4 If the ratio of Ahmed's and Mostafa's shares of the profits in a business project is 2 : 3 , and Ahmed's share is 6,000 pounds , what is Mostafa's share ?
 (a) 4,000 L.E (b) 5,000 L.E (c) 9,000 L.E (d) 13,000 LE
- 5 Which of the following sums has a positive sign ?
 (a) $19 + (-26)$ (b) $-35 + 17$ (c) $-25 + (-12)$ (d) $40 + (-18)$
- 6 If $\{4, 5, 7\} \subset \{3, x, 4, y, 8\}$, then what is the value of $x + y$?
 (a) 5 (b) 7 (c) 8 (d) 12
- 7 Which of the following is equivalent to the subtraction of : $-5 - (-8)$?
 (a) $5 - 8$ (b) $8 - 5$ (c) $5 + 8$ (d) $-5 - 8$
- 8 If $\frac{2x+1}{9} = \frac{10}{18}$, then what it is the value of x ?
 (a) 1 (b) 2 (c) 4 (d) 5
- 9 Which of the following is equal to - 5 ?
 (a) $0 \div (-5)$ (b) $1 \div (-5)$ (c) $-25 \div (-5)$ (d) $-25 \div 5$

10 Alaa bought a mobile phone for 6,750 L.E and sold it for 7,776 L.E

What is Alaa's percentage profit ?

- (a) 13 % (b) 15.2 % (c) 16.1 % (d) 18.6 %

11 Which of the following does not represent a proportion ?

- (a) $\frac{4}{7} = \frac{8}{14}$ (b) $\frac{5}{6} = \frac{3}{3.6}$ (c) $\frac{2}{3} = \frac{4}{9}$ (d) $\frac{5}{3} = \frac{10}{6}$

12 If $\frac{X}{20} = \frac{3}{4}$, then what is the value of X ?

- (a) 5 (b) 8 (c) 15 (d) 10

13 If $\frac{1}{3} = \frac{2}{b+1}$, then what is the value of b ?

- (a) 2 (b) 3 (c) 4 (d) 5

14 Magdy can run 75 meters in 25 seconds . If he maintained his speed , Which proportion you can use to find the time (X) he needs to run 300 meters ?

- (a) $\frac{75}{25} = \frac{X}{300}$ (b) $\frac{75}{25} = \frac{300}{X}$ (c) $\frac{25}{X} = \frac{300}{75}$ (d) $\frac{75}{X} = \frac{300}{25}$

15 If $X \notin \{ 2 , 5 , 7 \}$, so which of the following could it be equal to x ?

- (a) 1 (b) 2 (c) 5 (d) 7

16 If the scale 1 : 1,000 and the length on the drawing is 2.5 cm , what is the actual length in meters ?

- (a) 0.25 meters (b) 25 meters (c) 2.5 meters (d) 250 meters

17 Which of the following expressions has the same product as $-\frac{3}{8} \times \frac{8}{3}$?

- (a) $2 \frac{1}{4} \times \frac{4}{9}$ (b) $-\frac{2}{5} \times 3 \frac{1}{2}$ (c) $-\frac{1}{4} \times (-4)$ (d) $2 \frac{1}{2} - 3.5$

Q4 Answer the following questions

- ① **Alloys** : Medals are made of a bronze alloy consisting of three metals , copper , tin, and zine , in the ratio of $\frac{1}{5} : \frac{1}{18} : \frac{1}{45}$ Given that the mass of one medal is 425 grams

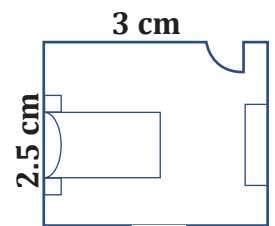
- Calculate the mass of each of the three metals .

- ② If the price of a television is 12,600 LE after a 16 % discount ,

- What was the price of the television before the discount ?

- ③ The opposite figure represents a room model , where every 1 cm in the model represents 1.2 , in reality

- What is the room's real area ?



- ④ If the price of a mobile phone in a store is 12,750 L.E and its price was reduced by 8 %

- What will be the price after the discount ?

FOX MATH

5 If the scale on the map 1 : 600,000 and distance between two points on the map is 4.5 cm

- Find the real distance between the two points ?

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6 Omar subscribed to a home internet service for 520 L.E per month , with an additional 14 % tax on the service price .

- What is the tax amount and the total amount Omar pays monthly ?

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FOX MATHS

Q1 Choose the correct answer from the given ones

- 1 Which of the following represent the solution set : $2(X - 5) = 0$ in \mathbb{Q}
 - (a) 0
 - (b) 5
 - (c) -5
 - (d) 10
- 2 The result of adding the two expressions : $-3y - x - 4z$, $x + 3y - 4z$ is
 - (a) Zero
 - (b) $-8z$
 - (c) $8z$
 - (d) $2x - 6y + 8z$
- 3 Which of the following equations is equivalent to the equations $2n + 1 = 3$?
 - (a) $n + 2 = 6$
 - (b) $2n = 4$
 - (c) $2n = 2$
 - (d) $n + 1 = \frac{3}{2}$
- 4 The solution set of : $4x + 9 = 3 + 2x$ in \mathbb{Q} is
 - (a) $\{-3\}$
 - (b) $\{-1\}$
 - (c) $\{1\}$
 - (d) $\{3\}$
- 5 The sum of the following expressions : $-4x + 6$, $3x - 2$ is
 - (a) $7x + 8$
 - (b) $7x + 4$
 - (c) $-x + 4$
 - (d) $-x - 4$
- 6 Which of the following is equal to $5a$?
 - (a) $3 + 2a$
 - (b) $2 + 3a$
 - (c) $2a + 3a$
 - (d) $5 + a$
- 7 The solution set for : $7 = 2(x + 3)$ in \mathbb{Z} is
 - (a) $\{\frac{1}{2}\}$
 - (b) $\{\frac{3}{2}\}$
 - (c) $\{\frac{5}{2}\}$
 - (d) \emptyset
- 8 The additive inverse of the expression : $3x - 2y + 8$ is
 - (a) $-3x - 2y + 8$
 - (b) $-3x + 2y + 8$
 - (c) $-3x + 2y - 8$
 - (d) $3x + 2y - 8$
- 9 Which of the following are similar algebraic terms ?
 - (a) $3x, -3x^2$
 - (b) $3y, 6y$
 - (c) x, y
 - (d) $5, 5x$
- 10 If $-7k = 28$, what is the value of $3k + 6$?
 - (a) -6
 - (b) -4
 - (c) 4
 - (d) 6
- 11 The value of $3(2n - m)$ when $n = 2$, $m = -2$ is
 - (a) 2
 - (b) 4
 - (c) 6
 - (d) 18

- 12 The solution set for $0.\overline{3}x + 3 = 12$ in \mathbb{Q} is
- (a) $\{30\}$ (b) $\{27\}$ (c) $\{24\}$ (d) $\{21\}$
- 13 What is the mathematical expression that represents subtracting (-2) from x ?
- (a) $x - 2$ (b) $2 - x$ (c) $-2 - x$ (d) $x + 2$
- 14 The solution set of the equation : $4(x + 2) = 12$ in \mathbb{Z} is
- (a) $\{-1\}$ (b) $\{1\}$ (c) $\{-2\}$ (d) $\{2\}$
- 15 The value of the expression : $3k - 4m + 1$ when $k = -1$, $m = -2$ is
- (a) Zero (b) 3 (c) 6 (d) 5
- 16 Which of the following are like algebraic terms?
- (a) $2x, -2x^2$ (b) $3a, 8a$ (c) $7x, 7$ (d) x^2, y^2
- 17 Which of the following equations has no solution in \mathbb{Z} ?
- (a) $6X = 12$ (b) $6X = 15$ (c) $6X = 18$ (d) $6X = 24$

Q2 Answer the following questions

1 Find the solution set of the equation in \mathbb{Q} : $4\left(\frac{1}{2}x - 2\right) = 4x + 6$

FOX MATHS

2 If $\frac{k}{4} = 9$, what is the value of $\frac{1}{2}k - 7$

3 A football field is rectangular in shape , and its length is 15 meters less than twice its width . If its perimeter is 330 meters

- Find the dimensions of the field ?

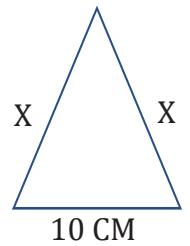
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4 If the perimeter of the adjacent triangle is 34 cm

- What is the value of x ?



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1 A teacher of mathematics wrote an integer on the board , and then he wrote another number , which was 17 less than twice the first number . If the sum of both numbers is 112

- What number did the teacher initially write ?

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5 Write the expression : $7m - 3n - 5m + 4n$ in its simplest form .

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6 If my mother's age now is three times my age , and she is 24 years older than me .

- How old is each of us now ?

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Q3 Choose the correct answer from the given ones

- 1 What is the appropriate equation to calculate the price of a shirt when buying 3 shirts of the same kind from an online store , if the total cost is 490 L.E including 40 L.E for shipping ?
 (a) $x + 40 = 490$ (b) $x + 120 = 490$ (c) $3x + 40 = 490$ (d) $3(x + 40) = 490$
- 2 Which of the equations below is not equivalent to $4x + 5 = 9$
 (a) $3x = 3$ (b) $4x + 1 = 5$ (c) $x - 1 = 5$ (d) $x + 1 = 2$
- 3 Which inequality expresses that Bassem requires a minimum of 10 gigabytes per month to accomplish his work online ?
 (a) $X < 10$ (b) $X > 10$ (c) $X \leq 10$ (d) $X \geq 10$
- 4 $a + a + a + a = \dots\dots\dots$
 (a) $4a^4$ (b) a^4
 (c) $4 + a$ (d) $4a$
- 5 The value of the expression : $(5x - 8)$ when $x = -1$ is
 (a) -13 (b) -3 (c) 3 (d) 13
- 6 The solution set for : $13 + 5x = 3$ in \mathbb{N} is
 (a) $\{-2\}$ (b) $\{-1\}$ (c) $\{2\}$ (d) \emptyset
- 7 What is the suitable equation to find the side length of an equilateral triangle with a perimeter of 12 centimeters ?
 (a) $x + 3 = 12$ (b) $3x = 12$ (c) $2x = 12$ (d) $x = 12$
- 8 What is the inequality expressing that the suitable height (n) cm of a person should not be less than 180 cm to join one of the sports ?
 (a) $n < 180$ (b) $n > 180$ (c) $n \leq 180$ (d) $n \geq 180$
- 9 If the point $(4, 3)$ is the midpoint of \overline{AB} , where B $(2, y)$ and A $(x, 5)$, what is the value of $(x + y)$?
 (a) 3 (b) 5 (c) 7 (d) 9

10 The sum of the following expressions : $-4x + 6$, $3x - 2$ is

(a) $7x + 8$

(b) $7x + 4$

(c) $-x + 4$

(d) $-x - 4$

11 Which of the following are like algebraic terms ?

(a) $2x, -2x^2$

(b) $3a, 8a$

(c) $7x, 7$

(d) x^2, y^2

12 Which algebraic expression is equivalent to the following : $2x - 3 - 4x + 1$?

(a) $2x - 2$

(b) $-2x + 2$

(c) $-6x - 4$

(d) $-2 - 2x$

13 Two consecutive numbers have a sum of 29 . Which of the following equations represents this ?

(a) $x + x + 2 = 29$

(b) $x + x + 1 = 29$

(c) $x + x - 1 = 28$

(d) $x + x + 1 = 30$

14 Which of the following is equal to $8y$?

(a) $5 + 3y$

(b) $3 + 5y$

(c) $8 + y$

(d) $3y + 5y$

15 What is the algebraic expression for the perimeter of the opposite rectangle ?

(a) $x + 3y$

(b) $2x + 6y$

(c) $y + 3x$

(d) $2y + 6x$



16 The solution set of the equation $\frac{1}{2}x + 4 = 7$ in \mathbb{Q} is

(a) $\left\{\frac{1}{2}\right\}$

(b) $\left\{\frac{3}{2}\right\}$

(c) $\{4\}$

(d) $\{6\}$

Q4 Answer the following questions

1 A school has $(8x + 15)$ girls and $(7x - 10)$ boys . Write a mathematical expression that shows

- How much more the number of girls than the number of boys in the school

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2 Find N the solution set of the equation : $3 (X - 2) - 4 X - 5$

.....

3 Write the expression in its simplest form : $4 (m - n + 4) - 2 (2 m - 4 n + 8)$
 , then find the value of the expression when $n = 5$

.....

.....

4 Find three consecutive even numbers whose sum equals 168

.....

5 A rectangle has a length 7 cm greater than its width . and its perimeter is
 66 meters

- Find the length of the rectangle ?

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6 Find in Q the solution set of the equation : $5 X + 7 = 2X - 5$

.....

FOX MATH

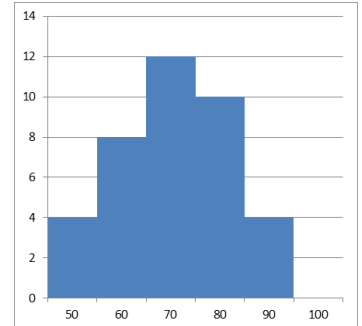
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Q1 Choose the correct answer from the given ones

- 1 The opposite figure shows the histogram for the weight distribution in Kilograms of 38 students .

How many of them weigh 70 kg or more ?

- (a) 12 (b) 19
(c) 22 (d) 22

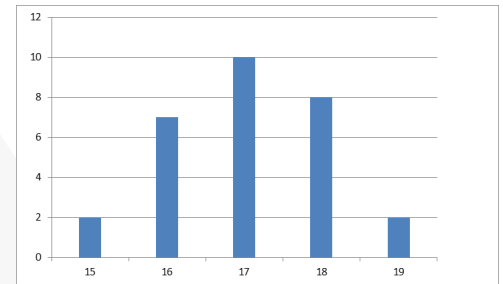


- 2 If the arithmetic mean of the numbers 3 , 4 , 8 , $X + 2$, X is 15 , what is the value of X ?

- (a) 9 (b) 18 (c) 29 (d) 58

- 2 The figure below shows the marks of 30 students
What is the arithmetic mean of these marks ?

- (a) 17 (b) 17.1
(c) 18 (d) 17.6



- 3 If the arithmetic of the numbers : $X + 2$, $X - 5$, $2X + 4$, 8 , $X + 1$ is 7 , what is the value of X ?

- (a) 3 (b) 4 (c) 5 (d) 6

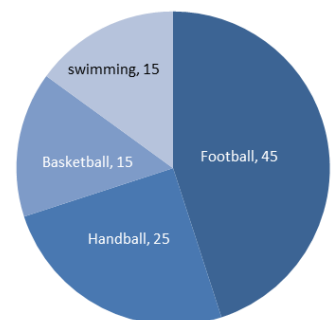
- 4 If the mode of the following : $a + 2$, $a + 1$, $a + 3$, $a + 2$ equals 12 , what is the value of a ?

- (a) 2 (b) 6 (c) 10 (d) 12

- 5 The opposite pie chart represents the favourite sport of 2,000 students in a school .

How many students prefer football ?

- (a) 500 (b) 700
(c) 800 (d) 900



6 In the opposite figure :

What is the median =

(a) 3.7

(b) 7

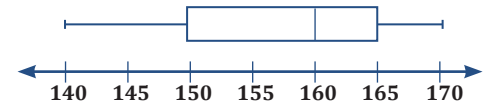
(c) 7.3

(d) 37

Stem	Leaves
2	0 2 3
3	4 6 6 8
4	5 7 8
5	2 9

KEY	4 5 MEANS 4.5
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7 The figure below represents the box plot of the heights of 50 students in centimeters



What is the value of the first quartile ?

(a) 140 cm

(b) 150 cm

(c) 160 cm

(d) 165 cm

8 If the mean for the five numbers is 34 , the median is 36 , and the mode is 39 , then the smallest possible value in this set of numbers is

(a) 25

(b) 22

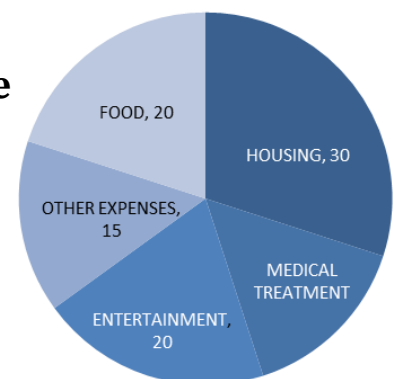
(c) 21

(d) 18

Q2 Complete the following

1 The arithmetic mean of the marks of 10 students is 87 marks . If the marks of two more students are added to these marks . the arithmetic mean increases to 89 marks . thus , the arithmetic mean of the two added students is

2 The opposite figure shows a pie chart for the expenditure of a family whose monthly income is 10,000 L.E
The monthly medical treatment expenses areL.E



3 If the arithmetic mean of five integers is 14 , the median is 15 , and the mode is 11 , then the greatest of these integers is

4 The opposite figure represents the temperatures

recorded in a city over two weeks

The range of these temperatures

is

Stem	Leaves
2	9
3	3 4 4 5 6 6 7 8 9
4	0 0 1 4

KEY	2 9 REPRESENTS 29 DEGREES
-----	-----------------------------

Q3 Choose the correct answer from the given ones

1 If the arithmetic mean of a student's marks in five exams is 94 , and his marks in the first four exams are 97 , 92 , 94 and 91 , how many marks did he score in the fifth exam ?

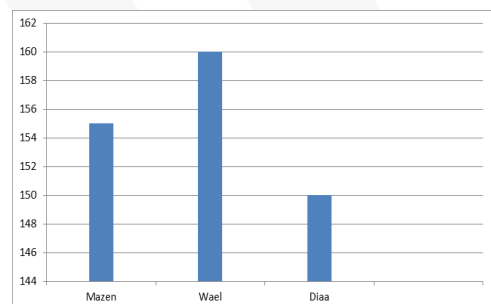
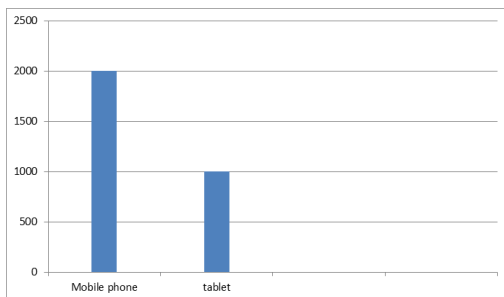
- (a) 90 (b) 93 (c) 96 (d) 95

2 Which of the following graphs does not represent actual data values ?

- (a) Bar graph (b) Line graph
(c) Histogram (d) stem - and - leaf plot

3 The two bar charts below , one of them represents the heights of three friends , and the other represents the number of mobile phones or tablets owned by employees in a company .

Which of the two charts is considered misleading ?



- (a) Only chart A is misleading (b) Only chart B is misleading
(c) Both charts are misleading (d) Neither chart is misleading

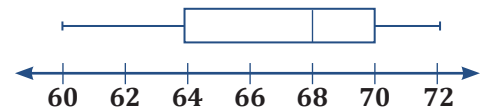
4 If the arithmetic mean of the lengths of the sides of a triangle is 8 cm , what is the perimeter of the triangle ?

- (a) 8 (b) 15 (c) 18 (d) 24

- 5 The opposite figure represents a box plot for 30 student masses , in kilograms

What is the first time ?

- (a) 60 kg (b) 64 kg (c) 68 kg (d) 78 kg



- 6 Youssef scored 48 , 47 , 46 , 48 and 45 in five math tests . If the teacher removed the lowest score , which of the following is correct ?

- (a) The mode increase (b) Median decrease
(c) The mean increase (d) The median doesn't change

- 7 If for set of data there is $\sum f = 12$ and $\sum (f \times X) = 156$, what is value of \bar{X} ?

- (a) 13 (b) 144 (c) 168 (d) 1,872

- 8 In the opposite figure :

The mode =

- (a) 2 (b) 5
(c) 22 (d) 35

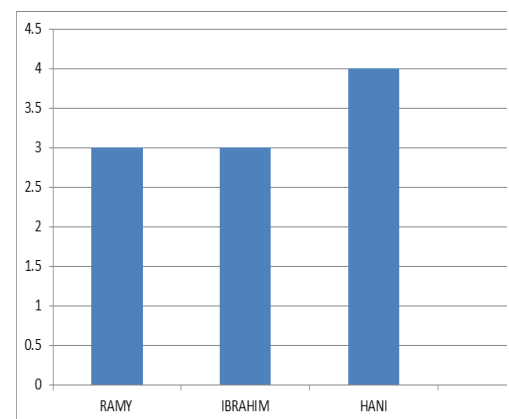
Stem	Leaves
21	0 1
2	0 2 2 3 9
3	4 5 5 5 7 8
KEY	3 4 MEANS 34

- 9 In the opposite bar chart represents the contributions of three friends (in the thousands of pounds) to a project .

If their shares in the project are represented by circular

sectors , whatis the central angel of Hani's sector ?

- (a) 72° (b) 108°
(c) 144° (d) 162°



Q4 Answer the following questions

1 If the marks of 40 students in a mathematics test are as follows , represent this data using a histogram

7	11	31	30	51	8	12	50	32	43
49	22	48	9	39	28	17	44	18	41
26	34	25	52	35	13	42	40	27	39
34	41	37	42	24	55	23	38	59	39

2 If the sports preferred by 80 of the first - year preparatory students

Sports	Football	Handball	Tennis	Swimming
Frequency	48	8	8	16

are given in the opposite table , use a pie chart to represent this data

3 If the numbers of water bottles sold every day over two weeks are given as follows , represent this data using a stem - and - leaf plot

6	42	36	33	12	17	21
19	34	45	27	25	14	18

4 The opposite table shows the

masses of 30 students in

a classroom (in kilogram)

Mass	44	46	47	49	50	51	52	53
Frequency	2	5	2	8	6	3	2	2

- Find the arithmetic mean of students masses

5 A group of individuals were asked about their favourite color , and the results were as follows :

Color	Red	Yellow	Green	Black
Present	15 %	25 %	15 %

- Find the percentage of individuals who preferred Green , then represent the data using a pie chart ?

6 The table below shows the number of work hours for 100 workers

Hours (X)	4	6	7	8	9	10	13
Number if workers (f)	15	13	30	m	10	8	2

- Find the value of m , then calculate the mean (average) of the number of work hours .

7 The following are the scores of 30 students in one of the tests :

25	35	23	35	36	34	40	28	35	20
37	36	30	39	29	37	28	38	40	32
40	33	26	35	22	29	37	38	37	31

- Create a frequency table with intervals (20 – , 24 – ,) , then represent the data using a histogram .

8 The opposite table shows the salaries of a group

of employees in a company , expressed in L.E

The company owner asserted the average salary of his employees is 6,500 L.E

- Explain why the average salary might be misleading and give the impression of being the salaries higher than their actual values for most employees .

Salaries in L.E	
Employee (1)	25,000
Employee (2)	4,000
Employee (3)	3,000
Employee (4)	2,500
Employee (5)	2,500
Employee (6)	2,000

- 9 The table below shows the number of hours studied weekly by a student in different subjects

Subject	Arabic	science	Math	English	Social studies
Number of students	8	5	11	6	6

- Represent the table using pie charts .

- 10 A restaurant displayed a menu with the prices of lunch meals in Egyptian pounds and announced that the average meal price is 132 pounds

menu	
Item	price
Kofta $\frac{1}{2}$ kg	180
$\frac{1}{2}$ chicken	150
Fish $\frac{1}{2}$ kg	160
Shawarma	150
Water bootle	20

- Explain why the average meal price might be misleading ?

- 11 The following data represents the number of trousers sold by a store over a period of 30 days :

34	34	46	13	33	42	33	14	37	14
47	45	29	17	38	19	39	28	15	9
19	16	33	6	29	27	25	49	7	35

- Represent these sales using a stem and leaf plot ?

Q1 Choose the correct answer from the given ones

1 What is the type of the angle that supplements an acute angle ?

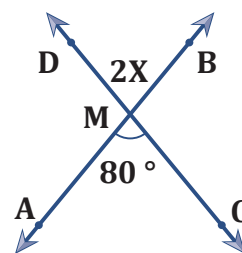
- (a) Acute (b) Obtuse (c) Straight (d) Reflex

2 In the opposite figure :

$$\text{If } \overleftrightarrow{CD} \cap \overleftrightarrow{AB} = \{ M \}$$

then what is the value of x ?

- (a) 20° (b) 40°
(c) 80° (d) 160°

3 If $X < 0$ and $Y > 0$, in which quadrant does the point $(x, -y)$ lie ?

- (a) First (b) Second (c) Third (d) Fourth

4 Which of the following angles must be one of the interior angles of a polygon for it to be concave ?

- (a) Straight (b) Acute (c) Right (d) Reflex

5 If ABCD is a parallelogram where : $AC = BD$, $\overline{AC} \perp \overline{BD}$ then the shape ABCD will be

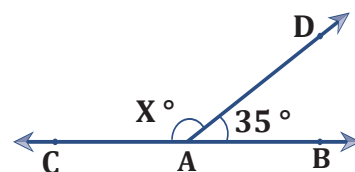
- (a) trapezium (b) rhombus (c) rectangle (d) square

6 In the opposite figure :

$$\text{If } A \in \overleftrightarrow{BC}$$

• What is the value of x ?

- (a) 55° (b) 85° (c) 125° (d) 145°



7 How many lines of symmetry does a regular polygon with 9 sides have ?

- (a) 9 (b) 7 (c) 18 (d) 11

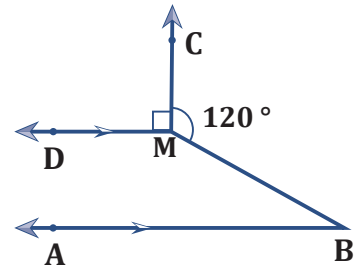
8 In the opposite figure :

$$\overrightarrow{MC} \perp \overrightarrow{MD}, \quad \overrightarrow{BA} \parallel \overrightarrow{MD}$$

$$, m(\angle BMC) = 120^\circ$$

• What is the measure of $\angle B$

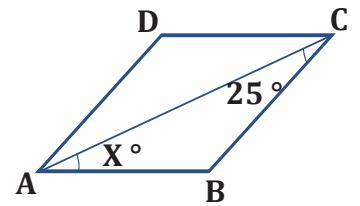
- (a) 20° (b) 30°
(c) 50° (d) 70°



9 In the opposite figure :

ABCD : a rhombus . What is the value of x ?

- (a) 25° (b) 50°
(c) 100° (d) 130°



10 If the sum of two angles in a triangle is 130° , what is the measure of the third angle ?

- (a) 20° (b) 30° (c) 50° (d) 60°

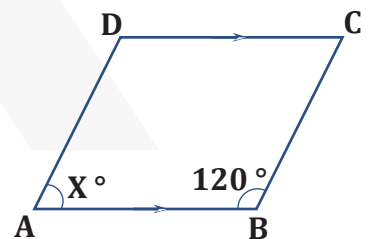
11 What is the number of axes of symmetry in a regular hexagon ?

- (a) 2 (b) 3 (c) 4 (d) 6

12 In the following figure :

• What is the value of X that makes the shape ABCD a parallelogram ?

- (a) 190° (b) 120°
(c) 80° (d) 60°



13 What is the projection of the point $(-3, 5)$ on the y - axis ?

- (a) $(0, 5)$ (b) $(-3, 0)$ (c) $(3, -5)$ (d) $(-3, 5)$

14 In which quadrant is the point $(3, -4)$ located ?

- (a) First (b) Second (c) Third (d) Fourth

15 In the opposite figure :

A regular heptagon

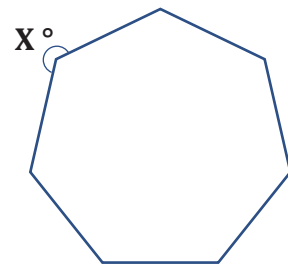
• What is the value of x ?

(a) $128 \frac{4}{7}$

(b) $174 \frac{4}{7}$

(c) $211 \frac{3}{7}$

(d) $231 \frac{3}{7}$



16 What is type of the angle that complements a right angle ?

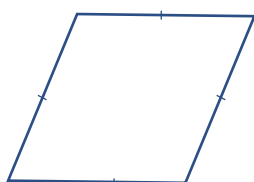
(a) Acute

(b) obtuse

(c) Zero

(d) Straight

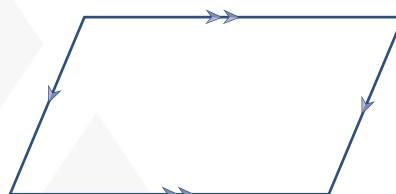
17 Which of the following shapes doesn't have an axis of symmetry ?



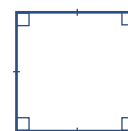
(a)



(b)



(c)



(d)

18 If $A(3, 1)$, $B(3, -1)$, so which of the following points is the midpoint for \overline{AB} ?

(a) $(0, 3)$

(b) $(3, 0)$

(c) $(6, 0)$

(d) $(0, 6)$

19 In the opposite figure :

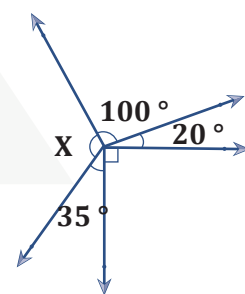
• What is the value of x ?

(a) 75°

(b) 105°

(c) 115°

(d) 135°



20 A parallelogram in which the diagonals are equal in length is a

(a) Rhombus

(b) Rectangle

(c) Square

(d) Trapeziod

21 What is the point that represents the projection of the point $(-3, 5)$ on the X - axis ?

(a) $(0, 5)$

(b) $(-3, 0)$

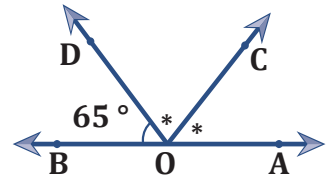
(c) $(3, -5)$

(d) $(-3, 5)$

22 In the opposite figure :

- What is the a of $\angle DOA$?

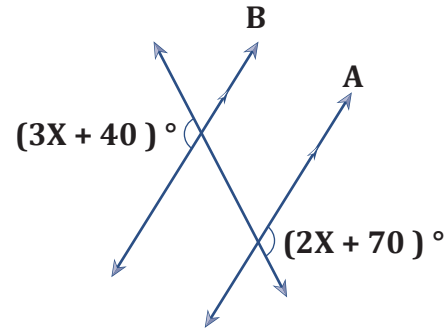
- (a) 50° (b) 80° (c) 115° (d) 130°



23 In the following figure :

- What is the value of X ?

- (a) 20° (b) 30°
(c) 40° (d) 50°



24 A parallelogram in which the diagonals are perpendicular and equal in length is

- (a) Rhombus (b) rectangle (c) Square (d) Trapezium

25 If the origin is the midpoint of \overline{AB} , and point A is located in the second quadrant, in which quadrant is point B located ?

- (a) First (b) Second (c) Third (d) Fourth

26 If ABC is a scalene triangle where the length of \overline{AC} is 3 cm and the length of \overline{BC} is 5 cm .

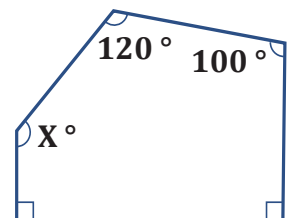
- How many integer values can the length of \overline{AB} have ?

- (a) 2 (b) 3 (c) 4 (d) 5

27 In the following figure :

- What is the value of x ?

- (a) 120° (b) 140°
(c) 150° (d) 135°

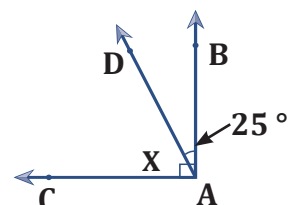


28 In the opposite figure :

If $\overrightarrow{AC} \perp \overrightarrow{AB}$

Then what is the value of x ?

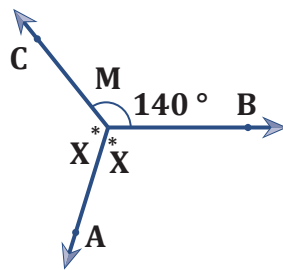
- (a) 35° (b) 65° (c) 80° (d) 155°



29 In the opposite figure :

• What is the value of x ?

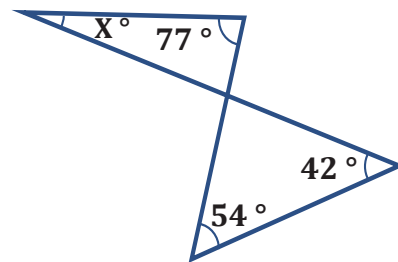
- (a) 220° (b) 130°
(c) 110° (d) 100°



30 In the opposite figure :

• What is the value of x ?

- (a) 19° (b) 48°
(c) 60° (d) 32°



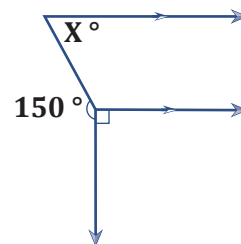
31 If the point $(3, k - 2)$ lies on the x - axis , what is the value of k ?

- (a) -3 (b) -2 (c) 3 (d) 2

32 In the opposite figure :

• $X = \dots\dots\dots$

- (a) 60° (b) 90°
(c) 50° (d) 120°



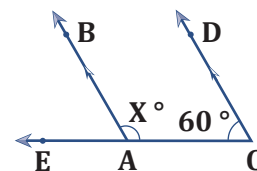
33 Which of the following sets of quadrilaterals have all their sides are equal in length ?

- (a) { Square , rectangle } (b) { Trapeziod , Rhombus }
(c) { Square , Rhombus } (d) { Rectangle , Rhombus }

34 In the opposite figure :

• What is the value of x ?

- (a) 150° (b) 120° (c) 110° (d) 60°



35 In the opposite figure :

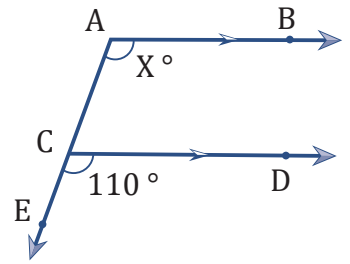
- What is the value of x ?

(a) 70°

(b) 90°

(c) 130°

(d) 110°



36 In the opposite figure :

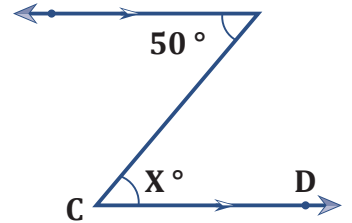
- What is the value of x ?

(a) 40°

(b) 50°

(c) 60°

(d) 130°



37 In the opposite figure :

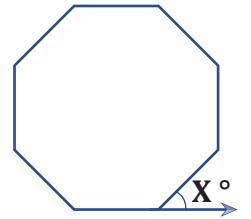
The shape is a regular octagon . What is the value of X ?

(a) 35°

(b) 45°

(c) 75°

(d) 135°



38 In the opposite figure :

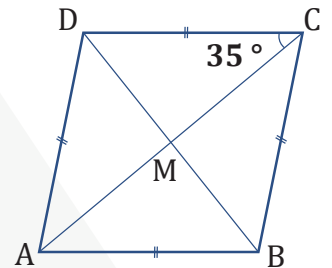
- What is the measure of $\angle CBD$?

(a) 35°

(b) 45°

(c) 65°

(d) 55°



39 In the opposite figure :

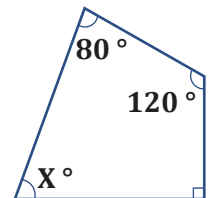
- What is the value of X ?

(a) 70°

(b) 90°

(c) 80°

(d) 120°



40 In the opposite figure :

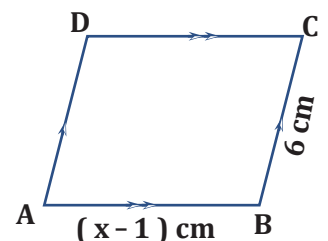
- What is the value of x that makes ABCD a rhombus ?

(a) 5

(b) 6

(c) 7

(d) 8



41 In the opposite figure :

$$\text{If } \overleftrightarrow{FG} \cap \overleftrightarrow{BE} = \{A\}$$

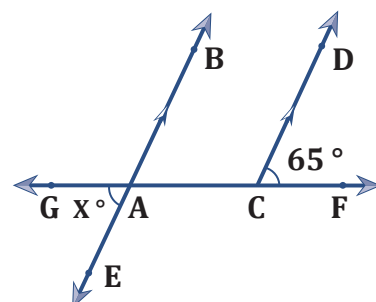
then what is the value of x ?

(a) 25°

(b) 65°

(c) 55°

(d) 115°



42 The diagonals bisects the interior angles in which of the following ?

(a) Rhombus and Rectangle

(b) Square and Rectangle

(c) Rhombus and Square

(d) Square and Parallelogram

43 In the opposite figure :

$$\text{If } O \in \overleftrightarrow{AB}$$

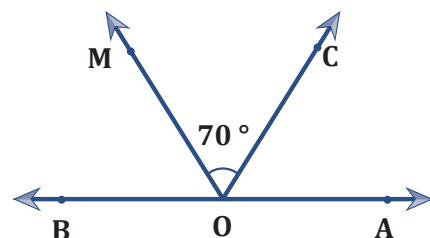
then the measure of $m(\angle AOM)$

(a) 55°

(b) 70°

(c) 125°

(d) 110°



44 In the opposite figure :

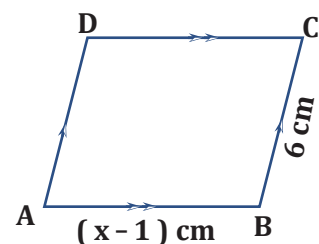
• What is the value of x that makes ABCD a rhombus ?

(a) 5

(b) 6

(c) 7

(d) 8



45 In the following figure :

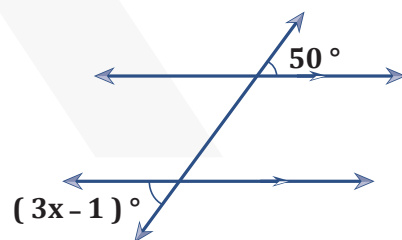
• What is the value of X ?

(a) 51°

(b) 50°

(c) 17°

(d) 31°



46 In an isosceles triangle , the lengths of two sides are 3 cm and 7 cm .

• What is the length of the third side ?

(a) 3 cm

(b) 4 cm

(c) 5 cm

(d) 7 cm

47 If angles A and B are complementary and $m(\angle A) = 40^\circ$ what is the measure of $\angle B$?

(a) 40°

(b) 50°

(c) 90°

(d) 140°

48 How many axes of symmetry are there in a regular hexagon ?

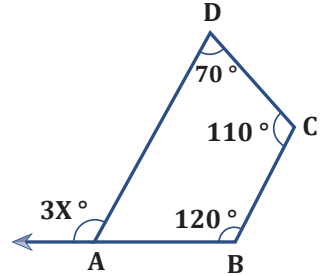
- (a) 2 (b) 3 (c) 4 (d) 6

49 In the opposite figure :

ABCD is a quadrilateral .

• What is the value of x ?

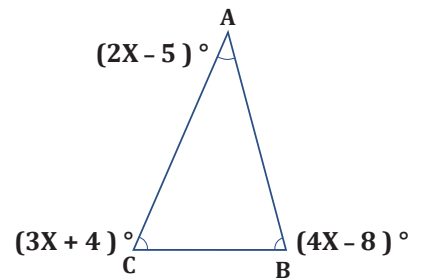
- (a) 40° (b) 50°
(c) 70° (d) 60°



50 In the opposite figure :

• What is the value of m ($\angle B$)

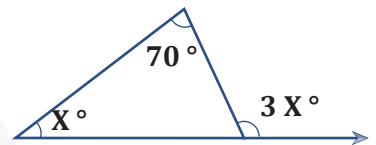
- (a) 76° (b) 84°
(c) 81° (d) 89°



51 In the opposite figure :

• What is the value of x ?

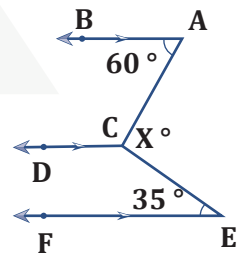
- (a) 70° (b) 140° (c) 35° (d) 100°



52 In the opposite figure :

• What is the value of x ?

- (a) 35° (b) 60°
(c) 95° (d) 105°



53 Which of the following numbers cannot be the lengths of the sides of triangle ?

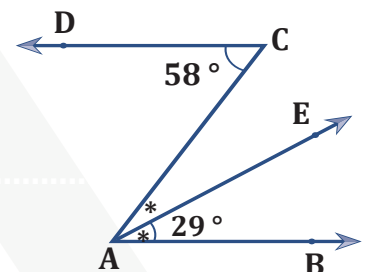
- (a) 4 cm , 7 cm , 4 cm (b) 3 cm , 4 cm , 7 cm
(c) 7 cm , 7 cm , 7 cm (d) 9 cm , 7 cm , 5 cm

- 54 What is the measure of the angle that supplements the angle measuring $34^\circ 60'$?
 (a) 55° (b) 56° (c) 145° (d) 146°
- 55 An isosceles triangle has two sides with lengths of 4 cm and 8 cm . What is the length of the third side ?
 (a) 4 cm (b) 5 cm (c) 8 cm (d) 6 cm
- 56 What is the measure of the interior angle of a regular polygon with 10 sides ?
 (a) 108° (b) 120° (c) 135° (d) 144°
- 57 If the measures of two angles in a triangle are 30° and 70° , which of the following cannot be the measure of an exterior angle of this triangle ?
 (a) 150° (b) 130° (c) 110° (d) 100°

Q2 Answer the following questions

1 In the opposite figure :

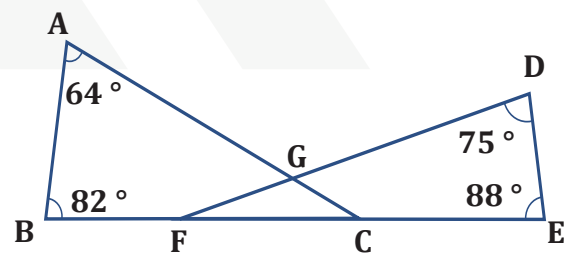
- Prove that : $\overrightarrow{AB} \parallel \overrightarrow{CD}$



2 In the opposite figure :

If $F, C \in \overline{BE}$

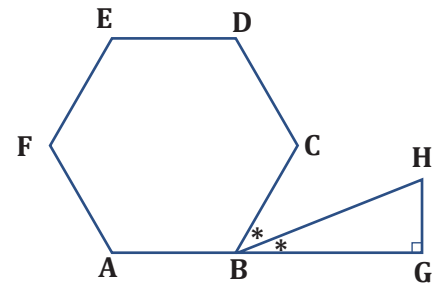
- Find : $m(\angle FGC)$



3 In the opposite figure :

ABCDEF is a regular hexagon

- Find with proof : $m(\angle H)$?

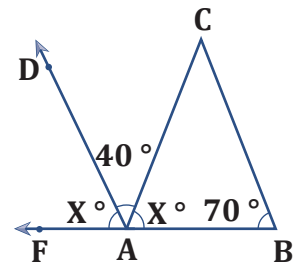


4 In the opposite figure :

$$m(\angle CAD) = 40^\circ$$

$$m(\angle B) = 70^\circ$$

- Prove that : $\overrightarrow{AD} \parallel \overrightarrow{BC}$

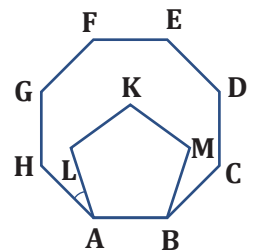


5 In the opposite figure :

ABCDEFGH is a regular octagon

, ABMKL is a regular pentagon

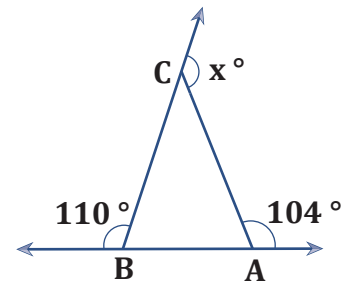
- Find with proof the value of the angle $m(\angle HAL)$



FOX MATH

6 In the opposite figure :

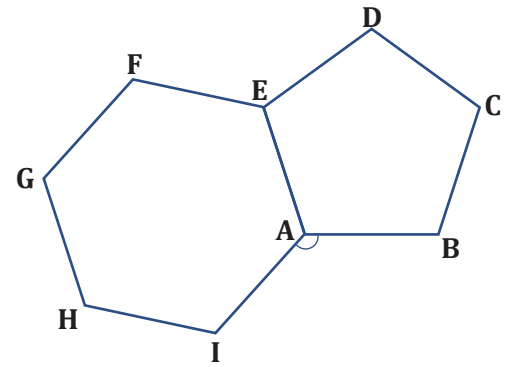
- Find the value of x with proof



7 In the opposite figure :

A regular pentagon and a regular hexagon

- Find with prove the value of : $m(\angle IAB)$.

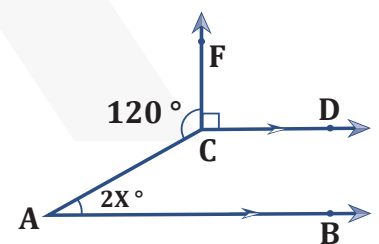


8 If the lengths of two sides of a triangle are 5 cm and 2 cm , what is the largest integer that can represent the length of the third side ?

9 Given A (- 7 , 13) and B (3 , 5) , find the coordinates of the points that divide \overline{AB} into four equals parts ?

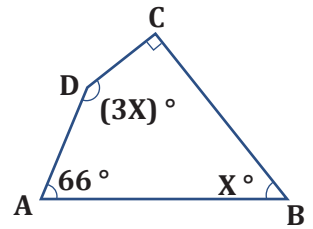
10 In the opposite figure :

- Find with proof the value of : x



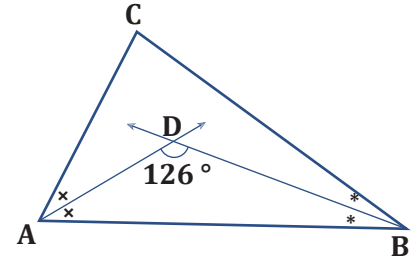
11 In the opposite figure :

- Calculate with proof the value of X .



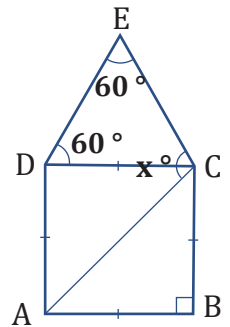
12 In the opposite figure :

- Find $m(\angle C)$ with proof .



13 In the opposite figure :

- Calculate with prove the value of x°



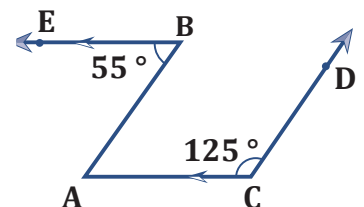
FOX MATH

14 In the opposite figure :

$$\overline{CA} \parallel \overline{BE}$$

$$m(\angle B) = 55^\circ, m(\angle C) = 125^\circ$$

- Prove that : $\overline{AB} \parallel \overline{CD}$

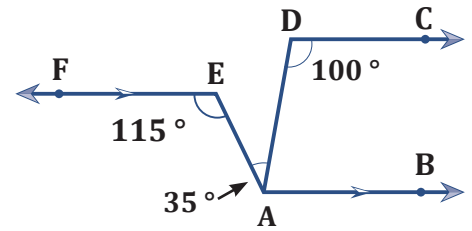


15 In the opposite figure :

$$\overrightarrow{AB} \parallel \overrightarrow{EF} \quad m(\angle D) = 100^\circ$$

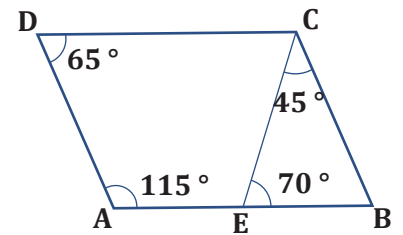
$$m(\angle E) = 115^\circ, m(\angle DAE) = 35^\circ$$

• Prove that : $\overrightarrow{AB} \parallel \overrightarrow{DC}$



16 In the following figure :

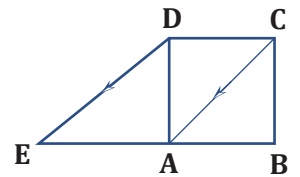
• Prove that : ABCD is a parallelogram



17 In the opposite figure :

ABCD is a square , $E \in \overrightarrow{BA}$, $\overrightarrow{AC} \parallel \overrightarrow{ED}$

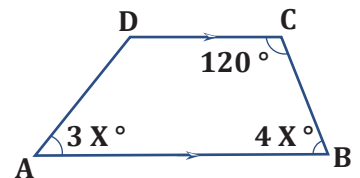
• Prove that : $AE = AB$



18 In the opposite figure :

ABCD is a trapezium

• Find with prove : $m(\angle D)$.

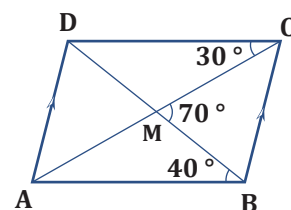


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19 In the opposite figure :

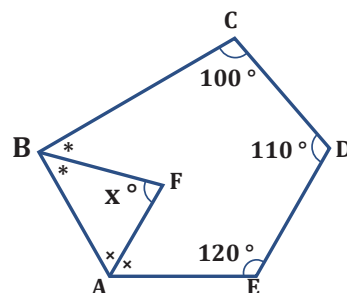
$$\overline{AC} \cap \overline{BD} = \{ M \}$$

- Prove that : ABCD is a parallelogram



20 In the opposite figure :

- Find with proof the value of x



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