Third Term Test - 2023

Grade	Subject :- **Mathematics**
9	

School Name : ....

Index Number : ....

Time : **2 ½ hrs**
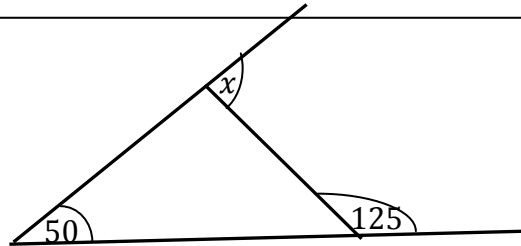

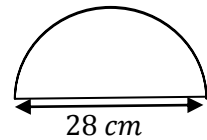| **Part I** |
|---|
| • Answer for all questions in the paper itself. |
| **(01).** When a watch is bought for Rs 8500 at outright purchase , a discount of 12% is given . Find the discount . |
| **(02).** Write $x^2 - 9y^2$ as a product of factors |
| **(03).** Simplify $\dfrac{5}{3x} - \dfrac{1}{x}$ |
| **(04).** Find the value of x |
| .**(05).** Solve the inequality $3 - 2x \le 5$ |
| **(06).** A sketch of a semi circular shape pond is given here . Find the arc length of the pond . 28 cm |
| **(07).** Simplify and write the answer with positive index . $\dfrac{2^{-6}}{2^{-4}}$ |

(08). Shade $A^{/} \cap B$
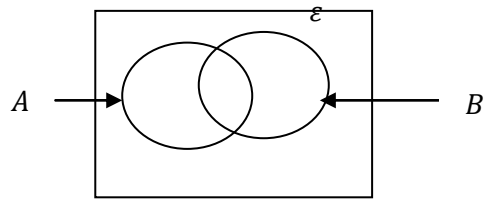
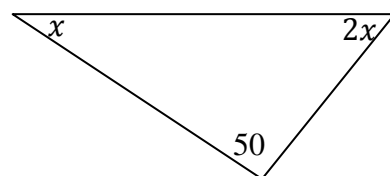**(09).** Solve $3x + 5 = x - 1$

(10). Simplify $1101_{two} + 10110_{two}$

(11). Remove brackets and simplify $(x - 5)(x + 4)$

(12). The area of the trapezium is $96cm^2$, Find the length given by a

10 cm

8 cm

a
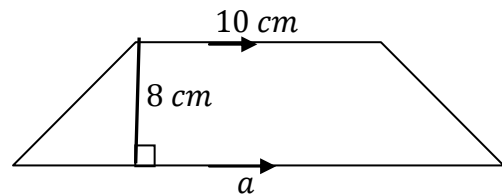
(13). Simplify $\left(\frac{1}{7} + \frac{2}{7}\right) of \frac{1}{3}$

(14). Find the value of x according to the given information.
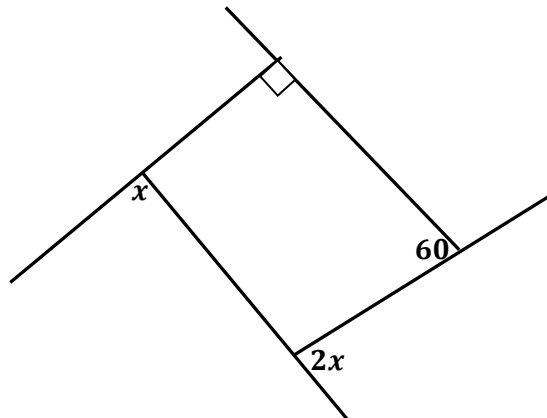

x

2x

50

(15). The capacity of a tank is 1500 . Find the time taken by a pump to fill it completely with water at the rate of 250 l per minute.

**(16)**. The sum of interior angles of a polygon is 1980^0. Find the number of sides.

(17). Find the gradient of the graph of the equation $3x + 2y = 6$

(18). Find the value of x

(19). 12 13 14 16 17 19 21 …..   is a part of a data distribution arranged in ascending order . The median of it is 19 . What is the number of data in the distribution .

(20). A and B are two flag posts. A flag post is to be fixed on BC and equidistance from A and B . Sketch out the construction lines needed to find that point in the diagram and name the point as E.
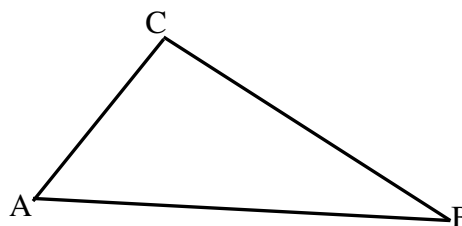
Answer first question and four other questions.

(01). Fill in the blanks of the following with the activity done for the lesson scale diagram .

(i). …………………… is used to find the north direction .

(ii). When the bearing is measured , the rotation is taken in ………………….

(iii). The instrument …………………… can be used to describe a location in a vertical plane

(iv). According to the diagram P is located on bearing ………………and ………..m away from O.
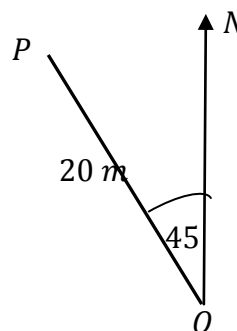
(b). Marks taken by 10 students for a monthly test are as follows.

24 47 16 89 72 81 47 18 75 64

Find   (i). Range   (ii). Mode   (iii). Median

(c).
(i). Construct the triangle ABC such that AB = 4.5 cm $A\hat{B}C = 90^0$, BC=6cm using straight edge and the pair of compass
(ii). Construct the perpendicular bisector of AC and name the intersection point of it with AC as O.
(iii). By taking O as the center and OA as the radius draw a circle. Measure and write the radius.

(02). (a). The following table is given to draw the graph of the function $y = 3x + 2$

x	-4	-3	-2	-1	0	1
y	-10	-7	-4		2	

(i). Fill in the blanks of the table .

(ii). Draw the above graph of the function in a suitable Cartesian plane .

(iii). Draw the straight line $y = -3$ in the same Cartesian plane and write the co ordinates of the intersection point of the graph and the straight line .

(b). Write the equation of the graph which is drawn parallel to $y = 2x - 1$ and passes through the point (0,2)

(03) (a). Factorise

(i). $ax + ay - 2x - 2y$ 　　　　　　　　　　(ii). $4a^3b^2 - 12ab$

(b). Solve the pair of simultaneous equations

3x-2y=27

6x-2y=69
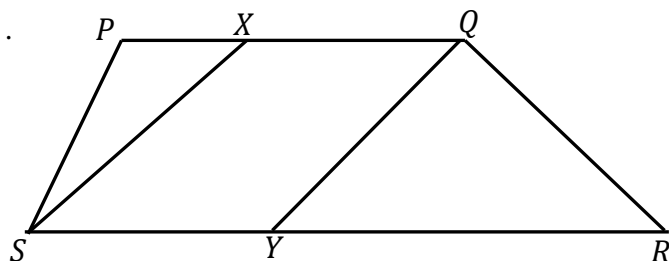
(c). Simplify

(i). $\dfrac{2x-3}{5} - \dfrac{x-3}{3}$ 　　　　　　　　(ii). $\dfrac{6m}{x+y} - \dfrac{4m-5}{x+y}$
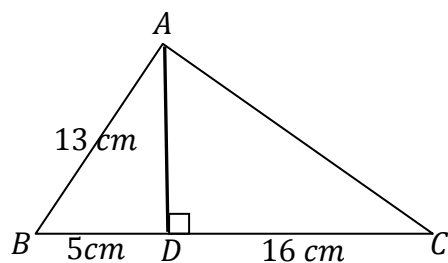
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(04). In the trapezium PQRS , PQ and SR are parallel lines . SX is drawn parallel to YQ

(i). Copy the diagram and indicate data .
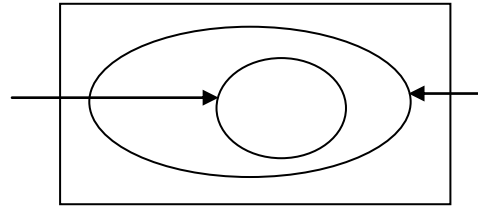
(ii). Show that $P\hat{X}S = Q\hat{Y}R$

(iii). According to the data in the diagram , Find the perimeter .

(05). (a). $\varepsilon=\{Whole\ numbers\ from\ 1\ to\ 10\}$

$A=\{Composite\ numbers\ from\ 1\ to\ 10\}$

$\varepsilon=\{complete\ square\ numbers\ between\ 1\ and\ 10\}$

(i). Copy the above ven diagram and name two sets as A and B.
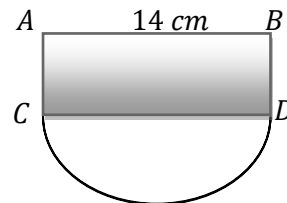(ii). Indicate the elements in the ven diagram.
(iii). Shade A∩B

(b). There are 3 identical blue pens and 2 black pens in a box . A pen is taken out randomly.

(i). Write the sample space (s)
(ii). Find the probability of taking a pen not being a black one .

(06). The diagram shows a badge consisting of the rectangle ABCD and a semi circle .
(take $\pi = \frac{22}{7}$)

(i). What is the radius

(ii). Find the arc length of semi circle

(iii). Find the area of semicircle

(iv). The area of a rectangle is half of the area of the semi circle , Find the length of AC .

(v). It is decided to fix a tape around the figure . Find the total cost if Rs 9 cost per 1 cm.

(07). A ship starts to travel from X on the bearing of 290^0 and 30 km. Then from that point the ship travels 40 km on the bearing of 210^0 and reach harbor P.

(i). Indicate above information in a sketch.

(ii). Draw a scale diagram to represent above data in the scale of 1: 6 000 000

(iii). Using the scale diagram , find the shortest distance from X to P.