

**MAR THOMA RESIDENTIAL SCHOOL, TIRUVALLA**  
**II TERMINAL EXAMINATION 2017- 18**

Std IX

MATHEMATICS

Time : 2 ½ hrs

Marks : 80

**Section A**  
**(Answer all Questions)**

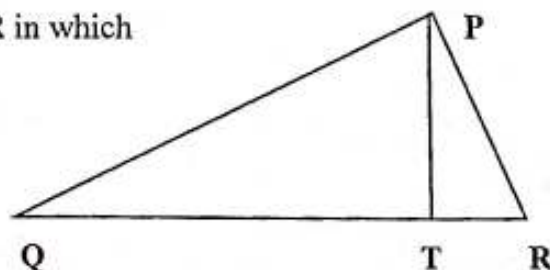
- I. (a). What point on the X – axis is at a distance of 5 units from the point (5, - 4) ? (3)
- (b). If an angle of a parallelogram is two – third of its adjacent angle, Find the angles of the parallelogram. (3)
- (c). The surface area of a cuboid is  $758 \text{ cm}^2$ . Its length and breadth are 14 cm and 11cm respectively. Find its height (4)

- II. (a). Solve the Following simultaneous Equations (3)
- $$\begin{aligned} 33x + 12y &= 123 \\ 12x + 33y &= 102 \end{aligned}$$

- (b). In a regular polygon, an interior angle is equal to four times the exterior angle. (3)
- Calculate (i) the magnitude of an exterior angle (ii) the number of sides in the polygon.

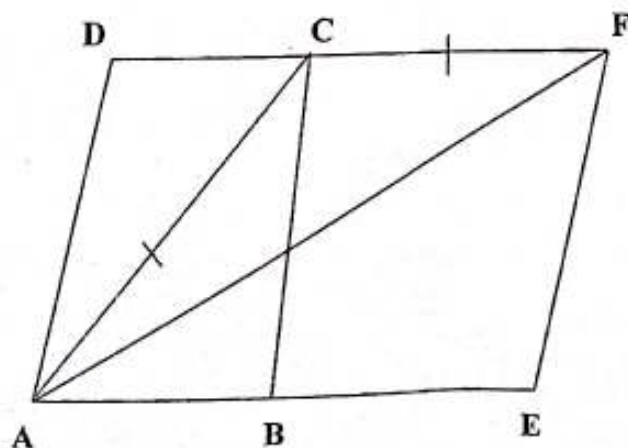
- (c). Calculate the side of a rhombus if its diagonals are 18 cm and 24 cm respectively. (4)

- III. (a). In the figure, PT is an altitude of the  $\Delta PQR$  in which  $PQ = 25\text{cm}$ ,  $PR = 17\text{cm}$ ,  $PT = 15\text{cm}$  Find QR. (3)



- (b). The angles of a pentagon are  $x^\circ$ ,  $(x - 10)^\circ$ ,  $(x + 20)^\circ$ ,  $(2x - 44)^\circ$  and  $(2x - 70)^\circ$ . (3)
- Calculate x and Find each angle of the pentagon.

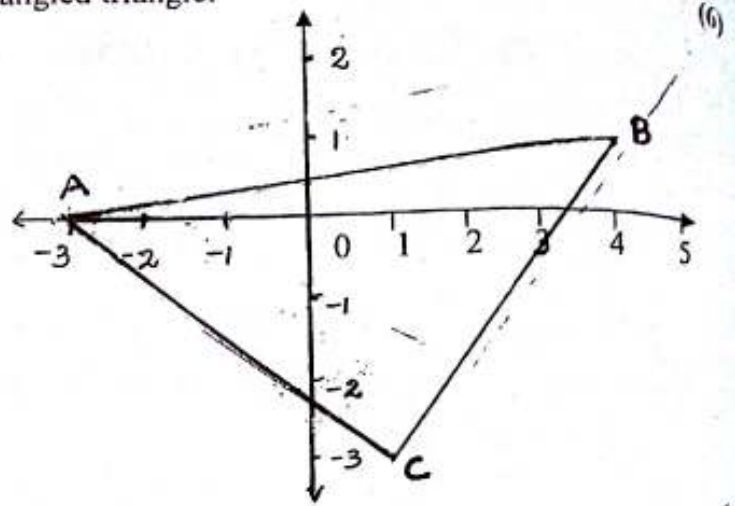
- (c). In the figure ABCD and BEFC are two parallelograms. (4)
- $AC = CF$ ,  $\angle CAB = 50^\circ$  Find  $\angle FAE$ .



IV. (a). Write down the vertices of the  $\Delta ABC$  from the figure.

(i) Check whether  $\Delta ABC$  is a right angled triangle. (using distance formula)

(ii) Find the area of the triangle.

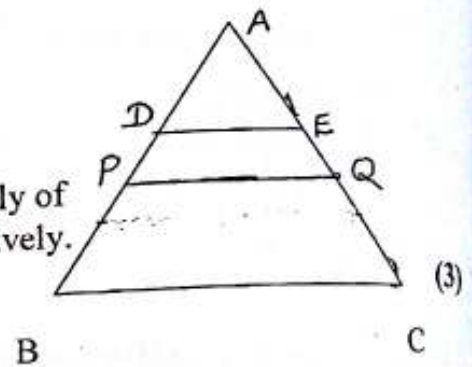


(b). Construct a regular hexagon of side 5cm

### Section B

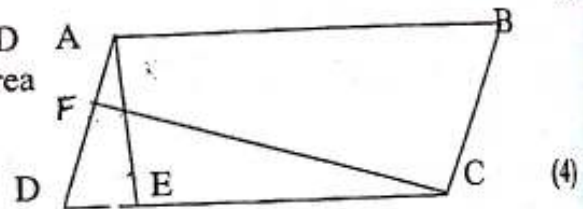
Answer any 4 questions

V. (a). P and Q are midpoints of the sides AB and AC respectively of  $\Delta ABC$ . Also D and E are midpoint of AP and AQ respectively. If  $DE = 2.3\text{cm}$ , then find the length of BC.



(b). A is a point on the y-axis whose ordinate is 5 and  $B(-3, 1)$ . Find AB.

(c). ABCD is a parallelogram,  $AE \perp DC$  and  $CF \perp AD$ . If  $AB=16\text{cm}$ ,  $AE=8\text{cm}$ , and  $CF=10\text{cm}$ . Find the area of the parallelogram and also find AD.



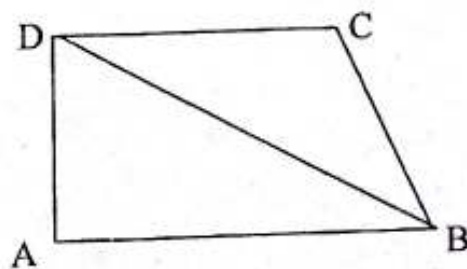
VI. (a). The sum of the interior angles of a polygon is thrice the sum of its exterior angles. How many sides has it got?

(b). Solve the simultaneous equations

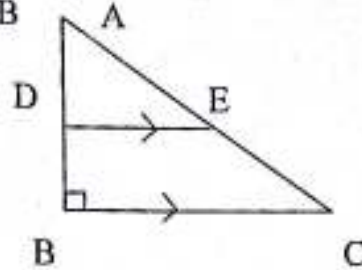
$$3x - 5y = 14, \quad 2x - 7y = 2$$

(c). ABCD is a quadrilateral.  $AB=40\text{cm}$ ,  $BC=15\text{cm}$ ,  $CD=28\text{cm}$ ,  $AD=9\text{cm}$ ,

$\angle A = 90^\circ$ . Find the area of ABCD.



- VII (a). In  $\triangle ABC$ ,  $\angle B = 90^\circ$ , D is the midpoint of AB and  $DE \parallel BC$ . If  $AB = 9\text{cm}$  and  $AC = 15\text{cm}$ , find the perimeter of DECB (3)



- (b). When three equal cubes are joined end to end, the surface area of the resulting cuboid is  $504\text{ cm}^2$ , find the edge of each cube (3)

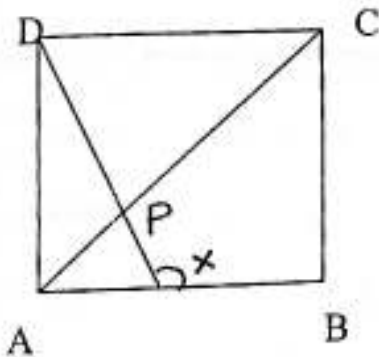
- (c). Construct a parallelogram ABCD in which  $AB = 4.6\text{cm}$ ,  $AC = 5\text{cm}$ , and the distance between the parallel sides AB and CD is  $3.2\text{ cm}$ . (4)

- VIII. (a). The area of a rectangle is  $300\text{ cm}^2$  and its length : breadth = 4 : 3. Find its perimeter (3)

- (b) Find 'a' if the distance of the point (4,1) from the point (3,a) is  $\sqrt{10}$  (3)

- (c) 3 men and 16 women can complete a piece of work in 4 days, 2 men and 4 women can do the same in 12 days. How long will it take a man can do it alone. (4)

- IX. a) In the figure ABCD is a square  $\angle DPC = 80^\circ$ . Find the value of x. (3)



- (b) The area of an equilateral triangle is  $173.2\text{ m}^2$ . Find its perimeter (3)

- (c) A tree, 10 feet tall, stands in the front of an 18 feet high building. If the tree is 15 feet away from the building, find the distance between their tops. (4)

- X) a) A school hall has the dimension 24 m by 15 m by 6 m. If each child requires  $16\text{ m}^3$  of air, how many children can be accommodated in the hall? (4)

- b) Solve the equations graphically (6)

$$y = x - 3, \quad 2x + 3y = -9$$

