

MT

2017 ____ 1100

Seat No.

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MT GENERAL MATHEMATICS (71) GEOMETRY - SEMI PRELIM - I - PAPER - 2 (E)

Time : 2½ Hours

(Pages 4)

Max. Marks : 40

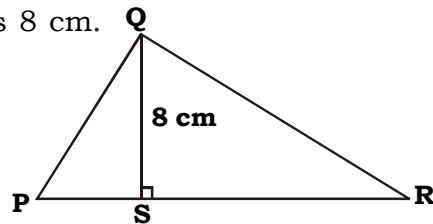
Note :

- (i) All questions are compulsory.
- (ii) Use of calculator is not allowed.

Q.1. Attempt ANY FIVE of the following :

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- (i) A $(\Delta PQR) = 24 \text{ cm}^2$, the height QS is 8 cm.
What is the length of side PR ?

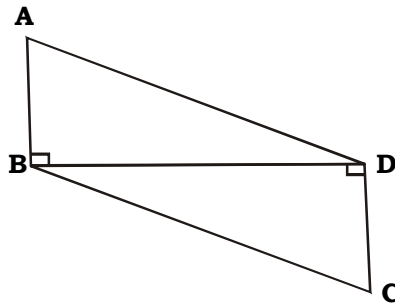


- (ii) If the measurements of a rectangular metal box are $10 \times 8 \times 6$ (in cm), find its volume.

- (iii) In the adjoining figure,
 $\angle ABD = \angle BDC = 90^\circ$.

$$\text{If } \frac{A(\Delta ABD)}{A(\Delta CDB)} = \frac{4}{5} \text{ and}$$

$AB = 6$ then find DC.

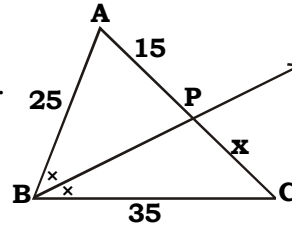


- (iv) The side of a cube is 17cm. Find its volume.
- (v) In ΔDEF , $m \angle D = 90^\circ$, $m \angle E = 45^\circ$, $m \angle F = 45^\circ$. If $EF = 8\sqrt{2}$ cm, find DE.
- (vi) The radius and height of a cylinder are 3.5 cm and 6 cm respectively. Find its volume.

Q.2. Solve ANY FOUR of the following :

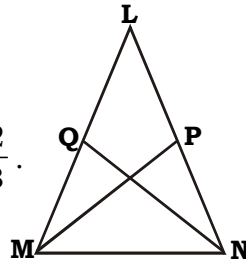
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- (i) Ray BP is the bisector of $\angle ABC$.
Find the value of x from the information given in the adjoining figure.



- (ii) Draw segment PQ of length 7.5 cm and bisect it.
- (iii) The curved surface area of a sphere is 616 sq.cm. Find its radius and diameter.

- (iv) In the adjoining figure,
 $\triangle MPL \sim \triangle NQL$ and $\frac{MP}{NQ} = \frac{2}{3}$.
If LM = 6, find LN.

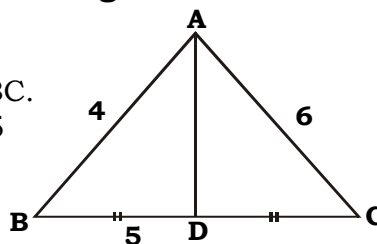


- (v) Draw $\hat{A}BC$ of measure 30° and by using the construction of congruent angles, construct $\hat{A}PQR$ such that $\hat{A}BC \cong \hat{A}PQR$.
- (vi) The radius of a circular cylinder is 10 cm and the area of its curved surface is 880 sq. cm. Find its height. $\left(f = \frac{22}{7}\right)$

Q.3. Solve ANY THREE of the following :

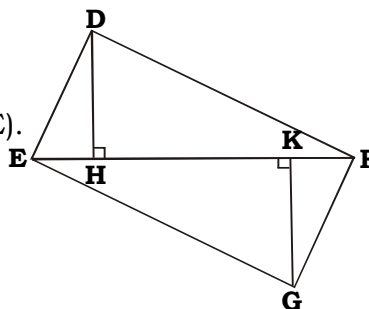
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- (i) In the adjoining figure,
in $\triangle ABC$, AD is median on BC.
If AB = 4, AC = 6 and BD = 5
then find AD.



- (ii) Draw a circle with centre P and radius 3 cm. Draw tangents from a point A such that $d(P, A) = 7.5$ cm.
- (iii) The total surface area of a cone is 770 sq.cm. If its slant height is four times the radius of the cone, find the diameter of the cone.

- (iv) In the adjoining figure,
 seg $DH \perp$ seg EF and seg $GK \perp$ seg EF .
 If $DH = 12$, $GK = 20$ and $A(\triangle DEF) = 300$
 then find (i) EF (ii) $A(\triangle GEF)$ (iii) $A(\square DFG E)$.



- (v) The volume of a wall is 16m^3 . Its height is 5 times and length is 8 times of its breadth. Find the breadth of the wall.

Q.4. Solve ANY TWO of the following :

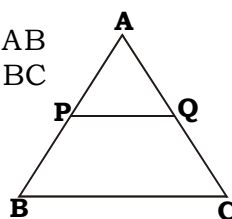
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- (i) $\triangle ABC$ is enlarged to $\triangle PQR$. $AB = 6$, $BC = 12$, $AC = 8$. If the largest side of $\triangle PQR$ is 18, then find the ratio and lengths of the remaining sides of $\triangle PQR$.
- (ii) Draw the circumcircle of $\triangle PQR$ in which $PQ = 5$ cm, $QR = 5$ cm and $\angle PQR = 75^\circ$.
- (iii) A piece of paper whose length and breadth are 22 cm and 10 cm respectively covers the curved surface of a right circular cylinder, whose diameter is 10 cm. Find the volume of the cylinder.

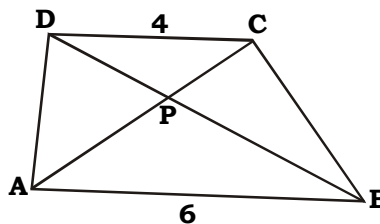
Q.5. Solve ANY TWO of the following :

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- (i) P and Q are the points on sides AB and AC of $\triangle ABC$ such that $PQ \parallel BC$ and $PQ : BC = 3 : 5$.
 Find $A(\triangle APQ) : A(\square PBCQ)$.



- (ii) The surface area of the vertical faces of a brick is 480 cm^2 and its height is 8 cm. Find the perimeter of the base. Find also its breadth, if the length of the brick is 20 cm hence find its volume.
- (iii) In the adjoining figure,
 $\square ABCD$ is a trapezium in which $DC \parallel AB$. If $DC = 4$,
 $AB = 6$, $DP = 2.5$ then, show that
 $\triangle APB \sim \triangle CPD$. Hence find PB .



Best Of Luck 🍀