



MT - W

Seat No.

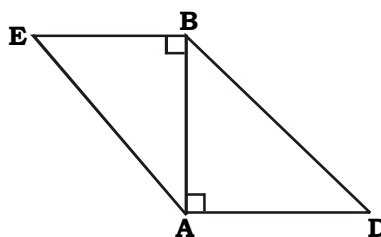
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2017 __ __ 1100 - **MT - W** - MATHEMATICS (71) GEOMETRY - SET - A (E)**Time : 2 Hours****(Pages 4)****Max. Marks : 40****Note :**

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

Q.1. Solve ANY FIVE of the following :**5**

- (i) In the adjoining figure,
seg $BE \perp$ seg AB and
seg $BA \perp$ seg AD .
If $BE = 6$ and $AD = 9$
find $\frac{A(UABE)}{A(UABD)}$.



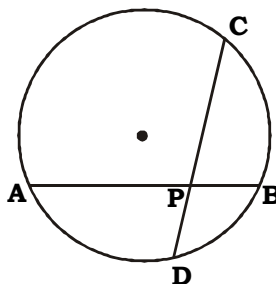
- (ii) If two circles with radii 5 cm and 3 cm respectively touch internally, find the distance between their centres.
- (iii) If the angle $\theta = -45^\circ$, find the value of $\tan \theta$.
- (iv) If $m = 5$ and $c = -3$, then write the equation of the line.
- (v) Find the circumference of a circle whose radius is 7 cm.
- (vi) Find the height of an equilateral triangle whose side is 6 units.

Q.2. Solve ANY FOUR of the following :

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- (i) E and F are points on the sides PQ and PR respectively of ΔPQR .
 $PE = 4$ cm, $QE = 4.5$ cm, $PF = 8$ cm and $RF = 9$ cm. State whether
 $EF \parallel QR$.

- (ii) In the adjoining figure,
 $PA = 6$, $PB = 4$ and $PC = 8$.
 Find PD .

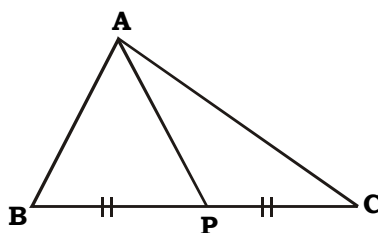


- (iii) Curved surface area of a cone with base radius 40 cm is 1640π sq.cm.
 Find the height of the cone.
- (iv) For the angle in standard position if the initial arm rotates 220° in
 clockwise direction then terminal arm is in which quadrant ? Also,
 draw a figure for the same.
- (v) The radius of the base of a right circular cylinder is 3 cm and height
 is 7cm. Find (a) curved surface area (b) total surface area.
 (Given $f = \frac{22}{7}$)
- (vi) Draw perpendicular bisector of seg AB of length 8.3 cm.

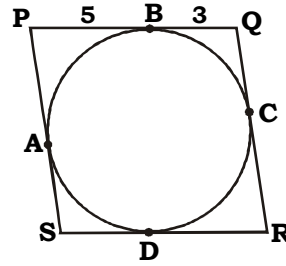
Q.3. Solve ANY THREE of the following :

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- (i) In ΔABC , AP is a median.
 If $AP = 7$, $AB^2 + AC^2 = 260$
 then find BC.



- (ii) In the adjoining figure, there are four tangents to a circle at the points A, B, C and D. These four tangents form a parallelogram PQRS. If $PB = 5$ and $BQ = 3$ then find PS.



- (iii) Draw a circle of suitable radius and draw a chord XY of length 4.6 cm. Draw tangents at points X and Y without using centre.
- (iv) If $\tan \theta = 1$, then find the value of $\frac{\sin \theta + \cos \theta}{\sec \theta + \operatorname{cosec} \theta}$, where θ is an acute angle.
- (v) If the points $\left(\frac{2}{5}, \frac{1}{3}\right)$, $\left(\frac{1}{2}, k\right)$ and $\left(\frac{4}{5}, 0\right)$ are collinear, then find the value of k.

Q.4. Solve ANY TWO of the following :

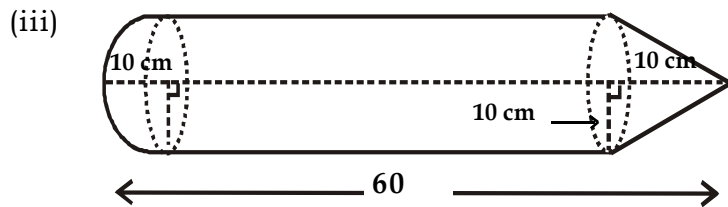
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- (i) A tree is broken by the wind. The top struck the ground at an angle of 30° and at a distance of 30 m from the root. Find the whole height of the tree. ($\sqrt{3} = 1.73$)
- (ii) Prove : The opposite angles of a cyclic quadrilateral are supplementary.
- (iii) In triangle ABC the co-ordinates of vertices A, B and C are (4, 7), (-2, 3) and (0, 1) respectively. Find the equation of medians passing through vertices A, B and C.

Q.5. Solve ANY TWO of the following :

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- (i) Prove : If a line parallel to a side of a triangle intersects other sides in two distinct points, then the line divides those sides in proportion.
- (ii) $\triangle ABC \sim \triangle DEF$, In $\triangle ABC$, $AB = 5.2$ cm, $BC = 4.6$ cm, $\angle B = 45^\circ$ and $\frac{BC}{EF} = \frac{2}{3}$; construct $\triangle DEF$.



A toy is a combination of a cylinder, hemisphere and a cone, each with radius 10 cm. Height of the conical part is 10 cm and total height is 60 cm. Find the total surface area of the toy.

$$(\pi = 3.14, \sqrt{2} = 1.41)$$

Best Of Luck 🍀