

ANNUAL EVALUATION 2011 - 2012
MATHEMATICS

Std:IX

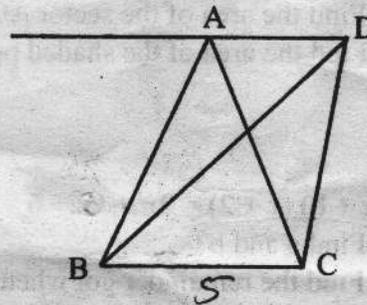
Score : 80

Time : 2 1/2 Hrs

Instructions

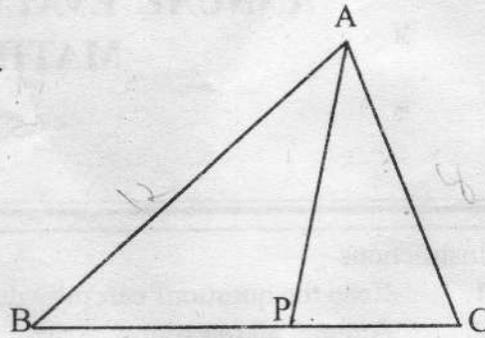
1. Read the questions carefully during the 15 minutes cool off time
2. Attempt all questions.

1. The weight of rice (in kgms) a shopkeeper sold for 12 days is given below.
Find the median.
94, 105, 108, 96, 85, 98, 89, 102, 103, 78, 91, 99 2
2. The numbers denoting the end points of the diameter of a circle on the number line are -5 and 1. Find the diameter? Find the number denoting the centre of the circle? 2
3. The length of the base edge of a regular hexagonal prism is 6cm and height is 20cm. Calculate the lateral surface area? 2
4. The numbers denoting the vertices P and Q of triangle PQR are 4 and 5. Find PQ? Find the perimeter of the triangle? 2
5. $P(x) = 2x^2 - 8x + 7$ Find $p(0)$, $p(-1)$ and $p(2)$? 3
6. The central angle of an arc of a circle 60° . The radius of the circle is 6cm. 3
 - a). What is the length of the arc? 2
 - b). What is the perimeter of the sector? 1
7. The base perimeter of a cylindrical water tank is 10m and the height is 6m. Find the capacity of the tank in litres? 3
8. In the figure, AD and BC are parallel. ABC is an equilateral triangle. If $BC = 5$ cm what is the area of triangle BCD? 3

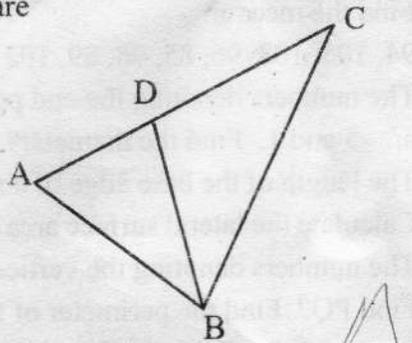


12. The perimeter of a rectangle is 48cm. Its breadth is 3cm less than half the length. Find the length and breadth of the rectangle? 3
13. $p(x) = x^2 - 2x + 1$, $q(x) = 2x + 1$. Find $p(x) \times q(x)$? 3

14. In triangle ABC, AP is the bisector of $\angle A$.
 $AB = 12\text{cm}$, $BC = 16\text{cm}$, $AC = 8\text{cm}$
 a). Find $BP : PC$.
 b). Find BP and PC
 c). What is the ratio of areas of triangle ABP and triangle APC?

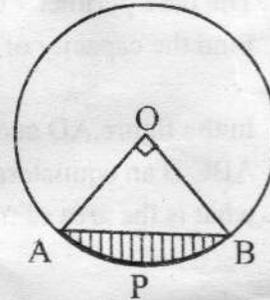


15. In the figure, $\angle ABD = \angle C$.
 Prove that the triangles ABD and triangle ABC are similar. Also prove that $AD \times AC = AB^2$



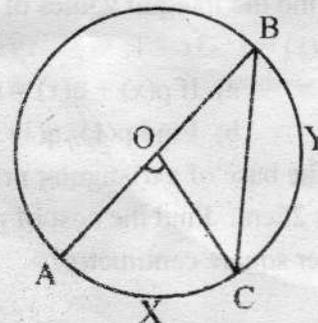
16. The circle with centre P intersects the number line at 5 and 11. The radius of the circle is 10 units. What is the distance from the centre to the number line?

17. In the figure, O is the centre of the circle with radius 6cm. The central angle of the arc APB is 90° .
 a) Find the area of triangle AOB?
 b) Find the area of the sector AOB?
 c) Find the area of the shaded portion?



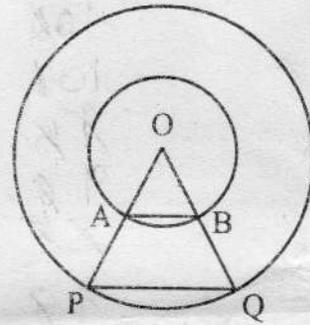
18. $(ax + b)(x + 2) = 2x^2 + 7x + 6$
 a) Find a and b?
 b) Find the remainder got when $2x^2 + 7x$ is divided by $(x + 2)$. Find the quotient?

19. In the figure, O is the centre of the circle.
 $\angle AOC = 60^\circ$
 a) What is the central angle of arc BYC?
 b) Find $\angle B + \angle C$?
 c) Find the measure of $\angle B$?

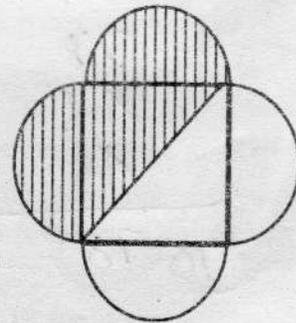


20. $AB = 5\text{cm}$, $BC = 6\text{cm}$, $AC = 7\text{cm}$. Draw triangle ABC. Divide triangle ABC into three triangles such that their areas are in the ratio $1 : 2 : 4$ 4

21. In the figure, O is the centre of the two circles. A and B are the points on the small circle. P and Q are the points on the big circle. Prove that the triangle OAB and OPQ are similar. 4



22. In the figure, there is a square of side 8cm. The semicircles are drawn with the sides of the square as diameter. 4
 a) Find the area of the square?
 b) Find the area of one semicircle?
 c) Find the area of the shaded portion?



23. In the figure, $\angle B$ and $\angle D$ are right angles. $AB = 1\text{m}$, $AD = 10\text{cm}$. Prove that $BC = 10 \times DE$. 4

24. A cylindrical pillar of maximum size is carved out of a square prism of base perimeter 120cm and height 2m. Calculate the volume of wood removed? 5

$$\begin{array}{r}
 2 \\
 4 \overline{) 104} \\
 \underline{8} \\
 24 \\
 \underline{20} \\
 40 \\
 \underline{40} \\
 0
 \end{array}$$

$$\begin{array}{r}
 2826 \\
 4 \overline{) 11304} \\
 \underline{8} \\
 33 \\
 \underline{32} \\
 104 \\
 \underline{104} \\
 0
 \end{array}$$

$$\begin{array}{r}
 50 \\
 4 \\
 \hline
 200
 \end{array}$$

$$\begin{array}{r}
 26 \\
 4 \\
 \hline
 80
 \end{array}$$

$$\begin{array}{r}
 2625 \\
 42 \\
 \hline
 100
 \end{array}$$

$$\begin{array}{r}
 26 \\
 4 \\
 \hline
 104
 \end{array}$$

$$\begin{array}{r}
 104 \\
 104 \\
 \hline
 0
 \end{array}$$