

**SAMPLE QUESTIONS**

**SUMMATIVE ASSESSMENT-II**

**2014-2015**

**CLASS-X**

**Mathematics**

**VSA: 1 MARKS**

1. If the common difference of an AP is 3, then what is  $a_{15} - a_9$ ?
2. If the ratio between the length of the shadow of a tower and its height is  $\sqrt{3}:1$ , then what is the angle of elevation of Sun?
3. The circumference of the base of a cone is 44 cm and the slant height is 25 cm. Find the curved surface area of the cone.
4. Find the area of a triangle whose vertices are (3, 0), (7, 0) and (8, 4).

**SA-I: 2 MARKS**

1. Find the roots of the quadratic equation  $3x^2 - 2\sqrt{6}x + 2 = 0$ .
2. Find the 4th term from the end of the AP -11, -8, -5, ....., 49.
3. In fig. 1, if length of AB is 9 cm, then, find the length of CP.

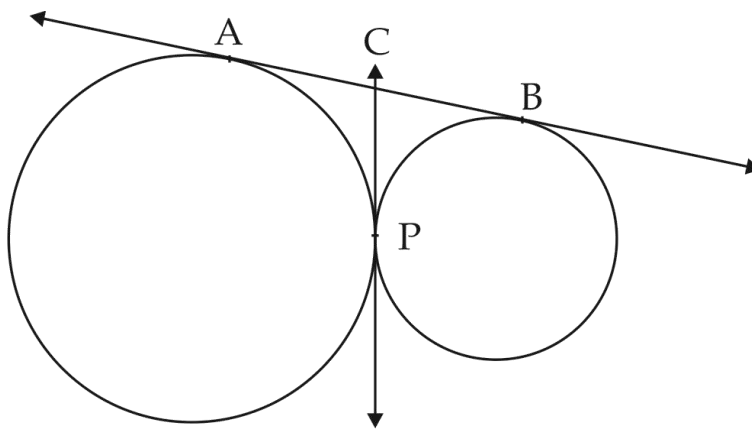


Fig. 1

4. Find the area of a sector of circle of radius 21 cm and central angle  $120^\circ$ .

$$\left[ \text{Use } \pi = \frac{22}{7} \right]$$

5. A game of chance consists of spinning an arrow, which comes to rest, pointing at one of the numbers 1, 2, 3, 4, 5, 6, 7, 8 (as shown in fig. 2). Find the probability that it will point at an odd numbers.

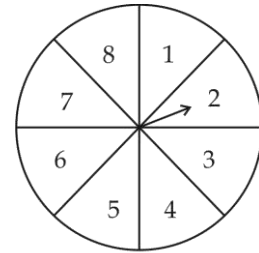


Fig. 2

6. A coin is tossed two times. Find the probability of getting atmost one head.

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### SA-II: 3 MARKS

1. Solve the following equation for  $z$ .

$$\frac{4}{z-1} - \frac{5}{z+2} = \frac{3}{z}, \quad z \neq 1, 0, -2$$

2. Find the sum of the two middle most terms of the AP

$$\frac{-4}{3}, -1, \frac{-2}{3}, \dots, 4\frac{1}{3}$$

3. In fig. 3, PQ and PR are tangents to the circle with centre O and S is a point on the circle such that  $\angle SQL = 50^\circ$  and  $\angle SRM = 60^\circ$ . Find  $\angle QSR$ .

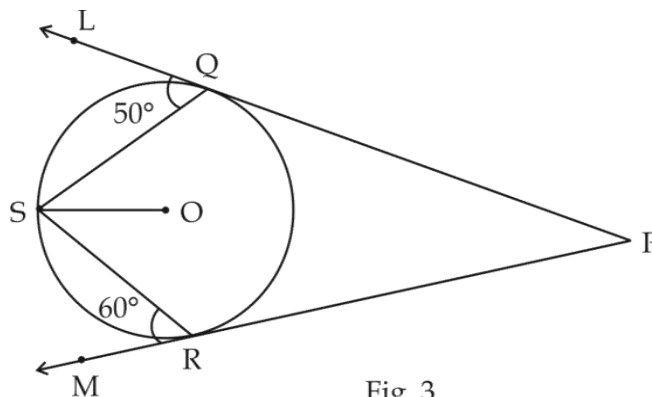


Fig. 3

4. From a balloon vertically above a straight road, the angles of depression of two cars on the same side at an instant are found to be  $45^\circ$  and  $60^\circ$ . If the cars are 100 m apart, find the height of the balloon.

- Find the area of the minor segment of a circle of radius 14 cm, when the angle of the corresponding sector is  $60^\circ$ .
- A circular pond is 21 m in diameter. It is surrounded by 3.5 m wide path. Find the cost of constructing the path at the rate of Rs. 25 per  $m^2$ .
- A solid cylinder is of height 15 cm and diameter 7 cm. Two equal conical holes of radius 3 cm and height 4 cm are cut off, one from each circular end. Find the surface area of the remaining solid.
- The surface area of a sphere of radius 5 cm is 5 times the curved surface area of a cone of radius 4 cm. Find the volume of the cone.
- In fig. 4, the line segment AB is divided into five equal parts at P, Q, R and S. If P is (8, 12) and R (4, 16), find the coordinates of A, Q and S.

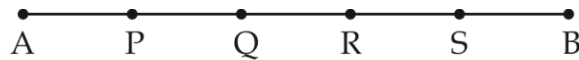


Fig. 4

- The centre of a circle is  $(x+2, x-1)$ . Find  $x$  if the circle passes through (2, -2) and (8, -2).

### LA: 4 Marks

- Anil takes 6 days less than the time taken by Varun to finish a piece of work. If both Anil and Varun together can finish that work in 4 days, find the time taken by Varun to finish the work independently.
- Yasmeen saves Rs. 32 during the first month, Rs. 36 in the second month and Rs. 40 in the third month. If she continues to save in this manner, in how many months she will save Rs. 2000, which she has intended to give for the college fee of her maid's daughter. What value is reflected here.
- A train, travelling at a uniform speed for 360 km would have taken 48 minutes less to travel the same distance, if its speed were 5 km/h more. Find the original speed of the train.
- Prove that the lengths of tangents drawn from an external point to a circle are equal.

5. In fig. 5, a  $\triangle ABC$  is drawn to circumscribe a circle of radius 4 cm such that the segments BD and DC are of lengths 8 cm and 6 cm respectively. Find the lengths of sides AB and AC.

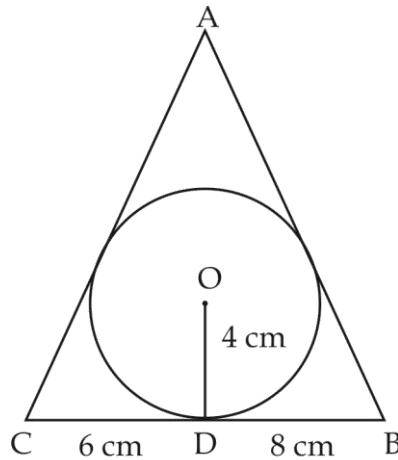


Fig. 5

6. Draw a triangle ABC in which  $AB=5$  cm,  $BC=6$  cm and  $\angle ABC = 60^\circ$ . Construct another triangle similar to  $\triangle ABC$  with scale factor  $\frac{5}{7}$ .
7. The angle of elevation of the top of a vertical tower from a point on the ground is  $60^\circ$ . From another point 10 m vertically above the first, its angle of elevation is  $45^\circ$ . Find the height of the tower.
8. In fig. 6, a conical vessel of radius 6 cm and height 8 cm is completely filled with water. A sphere is lowered into the water such that when it touches the sides, it is just immersed. What fraction of water overflows?

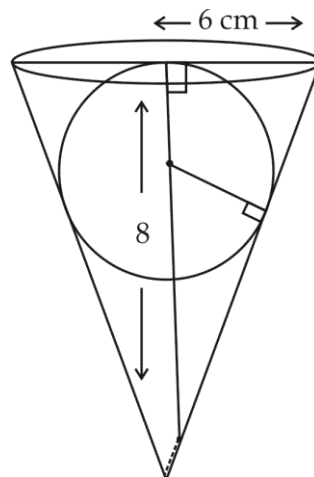


Fig. 6

9. Fig. 7 consists of a rectangle and a semi-circle. Find its area and perimeter.

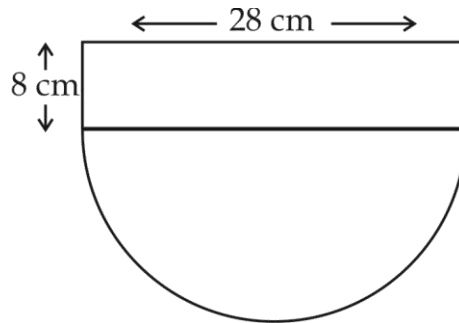


Fig. 7

10. The king, queen and jack of clubs are removed from a deck of 52 playing cards and then well shuffled. Now one card is drawn at random from the remaining cards. Find the probability, that the card is:
- (i) a heart      (ii) a king
11. If  $(-4, 3)$  and  $(4, 3)$  are two vertices of an equilateral triangle, find the coordinates of the third vertex, given that the origin lies in the interior of the triangle.