MATHS

BOOKS - RS AGGARWAL MATHS (HINGLISH)

APPLICATIONS OF CONIC SECTIONS

Solved Examples

1. The focus of a parabolic mirror is at a distance of 5 cm from its vertex and the mirror

is 15 cm deep.Find the diameter of the mirror.

2. A parabolic reflector is 9 cm deep and its diameter is 24 cm. How far is its focus from the vertex?

3. An arch is in the form of a parabola with its axis vertical. The arch is 10 m high and 5 m

wide at the base. How wide is it 2 m from the

vertex of the parabola?

4. An equilateral triangle is inscribed in the

parabola $y^2 = 4ax$ where are at the vertex of

the parabola. find the length of the side of the

triangle.

5. Find the area of the triangle formed by the lines joining the vertex of the parabola $x^2 = 12y$ to the ends of its latus rectum.

6. A water jet from a function reaches it maximum height of 4 m at a distance 0.5 m from the vertical passing through the point O of water outlet. The height of the jet above

the horizontal OX at a distance of 0.75 m from the point O is 5 m (b) 6 m (c) 3 m (d) 7 m

7. The cable of a uniformly loaded suspension bridge hangs in the form of a parabola. The roadway which is horizontal and 100 m long is supported by vertical wires attached to the cable, the longest wire being 30 m and the shortest being 6 m. Find t

8. A rod of length 12 cm moves with its ends always touching the coordinate axes. Determine the equation of the locus of a point P on the rod, which is 3cm from the end in contact with the x-axis.

9. A man running a racecourse notes that the sum of the distances from the two flag posts from him is always 10 m and the distance

between the flag posts is 8 m. Find the equation of the posts traced by the man.

10. An arc is in the form of a semi-ellipse. It is $8m$ wide and $2m$ high at the centre. Find the height of the arch at a point $1.5cm$ from one end.

1. The focus of a parabolic mirror is at a distance of 6 cm from its vertex. If the mirror is 20 cm deep, find its diameter.

▶ **Watch Video Solution**

2. If a parabolic reflector is 20 cm in diameter and 5 cm deep, find the focus.

▶ **Watch Video Solution**

3. over the towers of a bridge a cable is hung in the form of a parabola, have their tops 30 meters above the road way are 200 meters apart. If the cable is 5 meters above the road way at the centre of the bridge, then the length of the vertical supporting cable 30 meters from the centre is

4. A rod of length 12 cm moves with its ends always touching the coordinate axes. Determine the equation of the locus of a point P on the rod, which is 3cm from the end in contact with the x-axis.

▶ **Watch Video Solution**

5. A beam is supported at its ends by supports which are 12 metres apart. Since the load is concentrated at its centre, there is a deflection

of 3 cm at the centre and the deflected beam is in the shape of a parabola. How far from the centre is the