

Model Question for Co-ordinate Geometry

M.C.Q

1) If (x, y) are coordinates of point P referred to the original axes and (x_1, y_1) are co-ordinates of P referred to new axes and θ be the angle between both axes then

(a) $x_1 = x \cos \theta + y \sin \theta$

(b) $y_1 = x_1 \sin \theta + y_1 \cos \theta$

(c) Both 'a' & 'b'

(d) None of the above.

2) The eccentricity 'e' for the conic section ellipse is:-

(a) $e < 1$

(b) $e = 1$

(c) $e > 1$

(d) None of these

3) The eccentricity 'e' for the conic section parabola is:-

(a) $e < 1$

(b) $e = 1$

(c) $e > 1$

(d) None of these.

4) The eccentricity 'e' for the conic section hyperbola is:-

(a) $e < 1$

(b) $e = 1$

(c) $e > 1$

(d) None of these.

5) The length of latus rectum for the parabola

$y = 8ax$ is

(a) $8a$

(b) $4a$

(c) $2a$

(d) None of these.

6) For the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ the value of b^2 is given by:-

(a) $a^2(1-e^2)$

(b) $-a^2(1-e^2)$

(c) $a^2(e^2-1)$

(d) None of these.

7) The foci of an given ellipse are $(ae, 0)$ and $(-ae, 0)$ the eqn of directrices are given by

(a) $x = \frac{a}{e}, x = -\frac{a}{e}$

(b) $x = ae, x = -ae$

(c) $x = e/a, x = -e/a$

(d) None of these.

8) The length of latus rectum for the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ is:-

- (a) a^2/b (b) $2a^2/b$
(c) $2b^2/a$ (d) b^2/a .

9) The standard equation of an Hyperbola is:-

- (a) $y = mx + c$ (b) $y = 4ax$
(c) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ (d) $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$

10) For the given Hyperbola

10) The standard equation of a rectangular hyperbola is:-

- (a) $x^2 - y^2 = a^2$ (b) $x^2 + y^2 = a^2$ (c) $x^2 - y^2 = b^2$
(d) None of these.

Short Answer type Question

1) Transform to axes inclined at 30° to the original axes the equation $x^2 + 2\sqrt{3}xy - y^2 = 2a^2$

2) ~~Find~~ If the point $(2, 3)$ is the focus & $x = 2y + 6$ is the directrix of the parabola then find

- (i) Equation of the axis ; (ii) Co-ordinates of the vertex.
(iii) Length of latus rectum ; (iv) Equation of latus rectum.

3) Find the eccentricity & centre of the ellipse
 $2x^2 + 3y^2 - 4x + 5y + 4 = 0$

4) Find the eccentricity & centre of the hyperbola
 $x^2 - 4y^2 - 2x + 24y - 37 = 0$

Long Answer type Questions

- 1) Obtain the standard and general equation of the Parabola.
- 2) Obtain the standard equation of an ellipse.
~~And~~ And find the foci, directrices & eccentricity of the ellipse $3x^2 + 4y^2 = 12$
- 3) Obtain the equation of an Hyperbola and find the equation of the hyperbola with foci $(6,4)$ and $(-4,4)$ and eccentricity = 2.