



ASSIGNMENT NO. 3

SUBJECT: MATHEMATICS

CLASS-XI

OCTOBER ,26

CHAPTER STRAIGHT LINES

Ques 1 The point on the y-axis which is equidistant from the points (3, 2) and (-5, -2) is
(a) (-2, 0) (b) (0, -2) (c) (0, -1) (d) (-1, 0)

Ques2 A circle of diameter 20 units passes through the point (-3, -1). If the centre of a circle is $(2\alpha - 1, 3\alpha + 1)$, then natural number α is
(a) 3 (b) 4 (c) 2 (d) 1

Ques 3 If point C (-4, 1) divides the line segment joining the points A (2, -2) and B in the ratio 3 : 5, then the coordinates of B are
(a) (-14, 6) (b) (6, -14) (c) (-14, -6) (d) (-6, -14)

Ques 4 If the points A (-2, -1), B (1, 0), C (a, 3) and D (1, b) form a parallelogram ABCD, then the values of a and b are
(a) -4, -2 (b) -4, 2 (c) 4, 2 (d) 2, -4

Ques 5 If a line joining the points (-2, 6) and (4, 8) is perpendicular to the line joining the points (8, 12) and (x, 24), then the value of x is
(a) 3 (b) 4 (c) -4 (d) 2

Ques 6 If the points A (0, 6), B (2, 1) and C (7, 3) are three corners of a square ABCD, then the slope of the diagonal BD is
(a) $\frac{2}{7}$ (b) $\frac{7}{2}$ (c) $\frac{7}{3}$ (d) $-\frac{3}{7}$

Ques 7 If three points (h, 0), (a, b) and (0, k) lie on a line, show that $\frac{a}{k} + \frac{b}{k} = 1$

Ques 8 Find equation of line Passing through $(2, 2\sqrt{3})$ and inclined with the x-axis at an angle of 75° .

Ques 9 Find the points on the x-axis, whose distances from the line $\frac{x}{3} + \frac{y}{4} = 1$ are 4 units

Ques 10 Find the equation of a line passing through the intersection of lines $x-3y+1=0$, $2x+5y-9=0$ and whose distance from the origin is 2 units.

Ques 11 Find the ratio in which the line joining (2, 3) and (4, 1) divides the line joining (1, 2) and (4, 3). Also find the coordinates of point of intersection.

CHAPTER CONIC SECTIONS

Ques 1 Find the equation of the circle which passes through the point of intersection of the lines $3x-2y=1$ and $4x+y-27=0$ and whose centre is (2, -3).

Ques 2. Find the equation of a circle whose diameters are $2x-3y+12=0$ and $x+4y-5=0$ and area is 154 sq. units.

Ques 3. Find the equation of the circle whose radius is 5 and which touches the circle $x^2 + y^2 - 2x - 4y - 20 = 0$

externally at the point (5, 5).

Ques 4. Find the equation of the circle whose centre is at the point (4, 5) and which passes through the centre of the circle $x^2 + y^2 - 6x + 4y - 12 = 0$.

Ques 5. Find the equation of the circle concentric with the circle $2x^2 + 2y^2 + 8x + 10y - 39 = 0$ and having its area equal to 16π square units.

Ques 6. Find whether followings points (9, 1), (7, 9), (-1, 12) and (6, 10) are concyclic or not .

Ques 7 Find the vertex, axis, directrix, latus rectum of the following parabolas and also focus

(i) $4y^2 + 12x - 20y + 67 = 0$

(ii) $x^2 + 2y - 3x + 5 = 0$

Ques 8. Find the equation of the parabola with vertex (2, -3) and focus (0, 5).

Ques 9. Find the equation of the parabola whose vertex (2, 1) and directrix $x=y-1$.

Ques10 Find the equation of the ellipse with focus at (1, 1) and eccentricity 0.5 and directrix $x-y+3=0$

Ques11 Find the eccentricity, vertices, foci, directrices, the length of latus rectum for ellipse $x^2 + 4y^2 + 2x + 16y + 13 = 0$.

Ques12. For the hyperbola $16x^2 - 3y^2 - 32x - 12y - 44 = 0$. Find the axes, eccentricity, foci and equation of directrices.

Ques13 The equation of the circle which touches x-axis and whose centre is (1, 2) is

(a) $x^2 + y^2 - 2x - 4y + 4 = 0$

(b) $x^2 + y^2 - 2x - 4y + 1 = 0$

(c) $x^2 + y^2 + 2x + 4y - 1 = 0$

(d) $x^2 + y^2 + 2x - 4y + 1 = 0$

Ques 14 The equation of a circle which touches both the coordinate axes and the line $x = 3$ is

(a) $4x^2 + 4y^2 - 12x \pm 12y + 9 = 0$

(b) $4x^2 + 4y^2 + 12x \pm 12y + 9 = 0$

(c) $4x^2 + 4y^2 \pm 12x - 12y + 9 = 0$

(d) $4x^2 + 4y^2 \pm 12x + 12y + 9 = 0$

Ques 15 If a circle passes through the points (0, 0), (a, 0) and (0, b), then the coordinates of its centre are

(a) (a, b)

(b) $\left(-\frac{a}{2}, -\frac{b}{2}\right)$

(c) $\left(\frac{a}{2}, \frac{b}{2}\right)$

(d) (-a, -b)

Ques 16 The farthest distance of the point (1, 5) from the circle $(x - 1)^2 + (y - 1)^2 = 16$ is

(a) 4

(b) 5

(c) 6

(d) 10

Ques 17 If the lines $3x - 4y + 4 = 0$ and $6x - 8y - 7 = 0$ are tangents to a circle, then the radius of the circle is

(a) $\frac{3}{4}$ units

(b) $\frac{3}{2}$ units

(c) 3 units

(d) $\frac{2}{3}$ units

Ques 18 If one end of a diameter of the circle $x^2 + y^2 - 4x - 6y + 11 = 0$ is (3, 4), then the radius of the circle is

(a) (2, 1)

(b) (-2, 1)

(c) (1, 2)

(d) (-1, -2)

Ques19 The equation of parabola with focus at (-3, 0) and directrix $x - 3 = 0$ is

(a) $x^2 = 12y$

(b) $x^2 = -12y$

(c) $y^2 = 12x$

(d) $y^2 = -12x$

Ques 20 The equation of parabola through (-1, 3) and symmetric with respect to x-axis and vertex at origin is

(a) $y^2 = -9x$

(b) $y^2 = 9x$

(c) $y^2 = 3x$

(d) $y^2 = -3x$

Ques21 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 is

- (a) 12 sq. units (b) 16 sq. units (c) 18 sq. units (d) 24 sq. units

Ques22 If the parabola $y^2 = 4ax$ passes through the point (3, 2), then the length of its latus rectum is

- (a) $\frac{2}{3}$ (b) $\frac{4}{3}$ (c) $\frac{1}{3}$ (d) 4

Ques23 If the latus rectum of an ellipse is equal to half of minor axis, then its eccentricity is

- (a) $\frac{3}{2}$ (b) $\frac{1}{\sqrt{2}}$ (c) $\frac{\sqrt{3}}{2}$ (d) $\frac{1}{2}$

Ques24 If the eccentricity of an ellipse is $\frac{5}{8}$ and the distance between its foci is 10, then length of its latus rectum is

- (a) $\frac{39}{4}$ (b) $\frac{39}{2}$ (c) $\frac{23}{2}$ (d) $\frac{23}{4}$

Ques25 The equation of ellipse whose foci are $(\pm 3, 0)$ and length of semi-major axis is 4 is

- (a) $\frac{x^2}{7} + \frac{y^2}{16} = 1$ (b) $\frac{x^2}{16} + \frac{y^2}{7} = 1$ (c) $\frac{x^2}{9} + \frac{y^2}{25} = 1$ (d) $\frac{x^2}{25} + \frac{y^2}{9} = 1$

Ques26 The equation of ellipse whose vertices are $(\pm 5, 0)$ and foci are $(\pm 4, 0)$ is

- (a) $\frac{x^2}{16} + \frac{y^2}{9} = 1$ (b) $\frac{x^2}{9} + \frac{y^2}{16} = 1$ (c) $\frac{x^2}{25} + \frac{y^2}{9} = 1$ (d) $\frac{x^2}{9} + \frac{y^2}{25} = 1$

Ques27 The equation of the hyperbola with centre at the origin, the length of transverse axis is 6 and one focus is (0, 4) is

- (a) $9x^2 - 7y^2 = 63$ (b) $7y^2 - 9x^2 = 63$ (c) $9y^2 - 7x^2 = 63$ (d) $7x^2 - 9y^2 = 63$

Ques28 The equation of the hyperbola whose foci are $(\pm 4, 0)$ and length of latus rectum is 12 is

- (a) $\frac{x^2}{12} - \frac{y^2}{4} = 1$ (b) $\frac{y^2}{4} - \frac{x^2}{12} = 1$ (c) $\frac{y^2}{12} - \frac{x^2}{4} = 1$ (d) $\frac{x^2}{4} - \frac{y^2}{12} = 1$

Ques 29 The equation of the hyperbola whose vertices are at $(0, \pm 6)$ and eccentricity $= \frac{5}{3}$ is

- (a) $16x^2 - 9y^2 = 576$ (b) $16y^2 - 9x^2 = 576$ (c) $9x^2 - 16y^2 = 576$ (d) $9y^2 - 16x^2 = 576$

Ques30 If the equation $kx^2 + (2k - 3y)^2 - 4x + 6y - 1 = 0$ represents a circle, then the coordinate of its centre are

- (a) $\left(\frac{4}{3}, -1\right)$ (b) $\left(-\frac{2}{3}, 1\right)$ (c) $\left(-\frac{2}{3}, -1\right)$ (d) $\left(\frac{2}{3}, 1\right)$