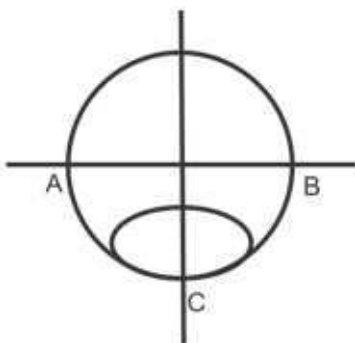


CHAPTER 11

CONIC SECTION

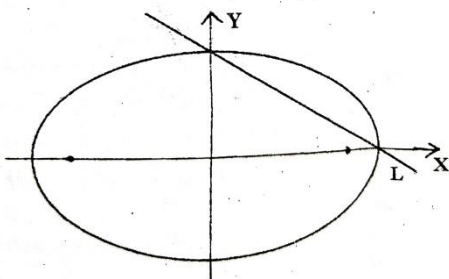
IMPROVEMENT 2018

1. Foci of the ellipse in the given figure are $(\pm \sqrt{12}, 0)$ and vertices are $(\pm 4, 0)$.
 - a) Find the equation of the ellipse. (2)
 - b) Write the equation of a circle with centre $(0, k)$ and radius r (1)
 - c) The circle in the figure passes through the points A, B and C on ellipse. Find the equation of a circle. (3)



MARCH 2018

2. Find the equation of the circle passing through the points $(4, 1)$ and $(6, 5)$ and whose centre is on the line $4x + y = 16$. (4)
3. The figure shows an ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1$ and a line L .



- a) Find the eccentricity and focus of the ellipse. (2)

- b) Find the equation of the line L . (2)
- c) Find the equation of the line parallel to line L and passing through any one of the foci (2)

IMPROVEMENT 2017

4. a) The length of latus rectum of the parabola $y^2 = -8x$. (1)
 - i) -8 ii) 8
 - iii) -4 iv) 4
- b) Find the coordinates of foci, the vertices, the length of major axis, minor axis, the eccentricity and the latus rectum of the ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1$ (3)

MARCH 2017

5. a) Find the equation of the parabola with focus $(6, 0)$ and equation of the directrix is $x = -6$. (2)
- b) Find the coordinates of the foci, the vertices, the length of transverse and conjugate axis and eccentricity of the hyperbola $\frac{x^2}{16} - \frac{y^2}{9} = 1$ (3)

IMPROVEMENT 2016

6. Find the foci, vertices, the eccentricity and the length of the latus rectum of the hyperbola $16x^2 - 9y^2 = 144$ (4)

MARCH 2016

7. Find the foci, vertices, length of the major axis and eccentricity of the ellipse: $\frac{x^2}{25} + \frac{y^2}{9} = 1$ (4)

SEPTEMBER 2015

8. Find the coordinates of the foci, vertices, eccentricity and the length of the latus rectum of the ellipse $100x^2 + 25y^2 = 2500$. (4)

MARCH 2015

9. a) Directrix of the parabola $x^2 = -4ay$ is (1)
- i) $x + a = 0$ ii) $x - a = 0$
 iii) $y - a = 0$ iv) $y + a = 0$
- b) Find the equation of the ellipse whose length of the major axis is 20 and foci are $(0, \pm 5)$ (3)

IMPROVEMENT 2014

10. a) Which one of the following equations represents a parabola, which is symmetrical about the positive y-axis? (1)
- i) $y^2 = 8x$ ii) $y^2 = -8x$
 iii) $x^2 + 4y = 0$ iv) $x^2 - 4y = 0$
- b) Find the equation of the ellipse whose vertices are $(\pm 13, 0)$ and foci are $(\pm 5, 0)$. (3)

MARCH 2014

11. a) Consider the ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1$. Find the coordinates of the foci, the length of major axis, the length of the minor axis, latus rectum and eccentricity. (4)

IMPROVEMENT 2013

12. a) Find the centre and radius of the circle $x^2 + y^2 - 8x + 10y - 12 = 0$. (2)
- b) Determine eccentricity and length of latus

rectum of the hyperbola $\frac{x^2}{16} - \frac{y^2}{9} = 1$. (2)

MARCH 2013

13. Find the coordinates of the foci, the length of the major axis, minor axis, latus rectum and eccentricity of the ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1$. (4)

IMPROVEMENT 2012

14. Find the equation of the hyperbola where foci are $(0, \pm 8)$ and the length of the latus rectum is 24. (4)

MARCH 2012

15. A hyperbola whose transverse axis is x-axis, center $(0, 0)$ and the foci $(\pm \sqrt{10}, 0)$ passes through the point $(3, 2)$.
- a) Find the equation of the hyperbola. (3)
- b) Find its eccentricity. (1)

IMPROVEMENT 2011

16. i) Find the equation of the circle with centre $(2, 2)$ and passing through the point $(2, 5)$ (2)
- ii) Find the eccentricity and the length of latus rectum of the parabola $x^2 + 16y = 0$. (2)

MARCH 2011

17. i) Find the equation of the circle with center $(2, 2)$ and passing through the point $(4, 5)$.
- ii) Find the eccentricity and the length of latus rectum of the ellipse $4x^2 + 9y^2 = 36$.

IMPROVEMENT 2010

18. Consider the conic $9y^2 - 4x^2 = 36$. Find

- a) The foci (2)
- b) Eccentricity (1)
- c) Length of latus rectum. (1)

MARCH 2010

19. An ellipse whose major axis as x-axis and the centre (0,0) passes through (4,3) and (-1,4).

- i) Find the equation of the ellipse. (2)
- ii) Find its eccentricity. (2)

IMPROVEMENT 2009

20. Consider the circle $x^2 + y^2 + 8x + 10y - 8 = 0$

- i) Find the centre C and radius 'r'. (1)
- ii) Find the equation of the circle with centre at C and passing through the point (1,2). (2)

21. i) Find the equation of the parabola with vertex at (0,0) and focus at (0,2). (1)

- ii) Find the co-ordinates of the foci and the latus rectum of the ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1$. (2)

MARCH 2009

22. a) Find the center and radius of the circle

$$2x^2 + 2y^2 - x = 0 \quad (2)$$

- b) Find the equation of the parabola with focus (6,0) and directrix $x = -6$ (2)

MARCH 2008

23. i) The circle whose equation is

$$x^2 + (y-1)^2 = 2 \text{ has the centre } \dots\dots (1)$$

ii) Find the equation of the tangent of the circle

$$x^2 + y^2 = 13 \text{ at the point } (2,3). \quad (2)$$

24. State whether the following is True or False:

The line $x + y = 0$ intersects the circle

$$x^2 + y^2 = 1 \text{ in two points.} \quad (1)$$

