DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth
DATE :

Solutions

SUBJECT : MATHS
DPP NO. : 1

Topic :- CONIC SECTION

1. The circle $x^2 + y^2 + 4x - 7y + 12 = 0$ cuts an intercept on y-axis of length
   a) 3 b) 4 c) 7 d) 1

2. If the eccentricities of the ellipse $\frac{x^2}{4} + \frac{y^2}{3} = 1$ and the hyperbola $\frac{x^2}{64} - \frac{y^2}{b^2} = 1$ are reciprocals of each other, then b^2 is equal to
   a) 192 b) 64 c) 16 d) 32

3. The ellipse $x^2 + 4y^2 = 4$ is inscribed in a rectangle aligned with the coordinate axes, which is turn in inscribed in another ellipse that passes through the point (4, 0). Then, the equation of the ellipse is
   a) $x^2 + 12y^2 = 16$ b) $4x^2 + 48y^2 = 48$ c) $4x^2 + 64y^2 = 48$ d) $x^2 + 16y^2 = 16$

4. The Cartesian equation of the directrix of the parabola whose parametric equations are $x = 2t + 1, y = t^2 + 2$, is
   a) $y = 2$ b) $y = 1$ c) $y = -1$ d) $y = -2$

5. The line $x - 1 = 0$ is the directrix of the parabola $y^2 - kx + 8 = 0$. Then one of the value of k is
   a) $\frac{1}{8}$ b) 8 c) 4 d) $\frac{1}{4}$

6. The equation of the axes of the ellipse $3x^2 + 4y^2 + 6x - 8y - 5 = 0$, are
   a) $x + 3, y = 5$ b) $x + 3 = 0, y - 5 = 0$ c) $x - 1 = 0, y = 0$ d) $x + 1 = 0, y - 1 = 0$

7. Locus of the mid points of the chord of ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, so that chord is always touching the circle $x^2 + y^2 = c^2$, $(c < a, c < b)$ is
   a) $(b^2x^2 + a^2y^2)^2 = c^2(b^4x^2 + a^4y^2)$ b) $(a^2x^2 + b^2y^2)^2 = c^2(a^4x^2 + b^4y^2)$
   c) $(b^2x^2 + a^2y^2)^2 = c^2(b^2x^4 + a^2y^4)$ d) None of the above

8. The length intercepted by the curve $y^2 = 4x$ on the line satisfying $dy/dx = 1$ and passing through point (0, 1), is given by
   a) 1 b) 2 c) 0 d) None of these

9. Two vertices of an equilateral triangle are $(-1,0)$ and $(1,0)$ and its third vertex lies above the x-axis. The equation of its circumcircle, is

a) $x^2+y^2-\frac{1}{\sqrt{3}}y-1=0$

b) $x^2+y^2+\frac{2}{\sqrt{3}}y-1=0$

c) $x^2+y^2-\frac{2}{\sqrt{3}}y-1=0$

d) None of these

10. The tangents to $x^2+y^2=a^2$ having inclinations α and β intersect at P. If $\cot\alpha+\cot\beta=0$, then the locus of P is

a) $x+y=0$ b) $x-y=0$ c) $xy=0$ d) None of these

11. The parametric representation $(2+t^2, 2t+1)$ represents

a) A parabola with focus at $(2,1)$

b) A parabola with vertex at $(2,1)$

c) An ellipse with centre at $(2,1)$

d) None of these

12. Product of the perpendicular from the foci upon any tangent to the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1(a<b)$ is equal to

a) $2a$ b) a^2 c) b^2 d) ab^2

13. The equations of the sides AB, BC, CA of a ΔABC are $x+y=1$, $4x-y+4=0$ and $2x+3y=6$. Circles are drawn on AB, BC, CA as diameter. The point of concurrence of the common chord is

a) Centroid of the triangle b) Orthocenter

c) Circumcentre d) Incentre

14. The sum of the distances of a point $(2,-3)$ from the foci of an ellipse $16(x-2)^2+25(y+3)^2=400$ is

a) 8 b) 6 c) 50 d) 32

15. If the equation of a given circle is $x^2+y^2=36$, then the length of the chord which lies along the line $3x+4y-15=0$ is

a) $3\sqrt{6}$ b) $2\sqrt{3}$ c) $6\sqrt{3}$ d) None of these

16. The normal chord of a parabola $y^2=4ax$ at (x_1,x_1) subtends a right angle at the

a) Focus

b) Vertex

c) End of the latusrectum

d) None of these

17. The equation of the circle which has a tangent $2x-y-1=0$ at $(3,5)$ on it and with the centre on $x+y=5$, is

a) $x^2 + y^2 + 6x - 16y + 28 = 0$
b) $x^2 + y^2 - 6x + 16y - 28 = 0$
c) $x^2 + y^2 + 6x + 6y - 28 = 0$
d) $x^2 + y^2 - 6x - 6y - 28 = 0$

18. The equation of the tangent to the parabola $y^2 = 9x$ which goes through the point $(4, 10)$, is
a) $x + 4y + 1 = 0$ b) $9x + 4y + 4 = 0$ c) $x + 4y + 36 = 0$ d) $9x - 4y + 4 = 0$

19. The length of the chord of the circle $x^2 + y^2 + 4x - 7y + 2 = 0$ along the y-axis, is
a) 1 b) 2 c) $1/2$ d) None of these

20. What is the slope of the tangent drawn to the hyperbola $xy = a$, $(a \neq 0)$ at the point $(a, 1)$?
a) $\frac{1}{a}$ b) $-\frac{1}{a}$ c) a d) $-a$