DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth
DATE :

Solutions

SUBJECT : MATHS
DPP NO. : 10

Topic :- CONIC SECTION

1. If the circle $x^2 + y^2 + 4x + 22y + c = 0$ bisects the circumference of the circle $x^2 + y^2 - 2x + 8y - d = 0$, then $c + d$ is equal to

a) 30 b) 50 c) 40 d) 56

2. If C is the centre of the ellipse $9x^2 + 16y^2 = 144$ and S is one focus. The ratio of CS to major axis, is

a) $\sqrt{7}:16$ b) $\sqrt{7}:4$ c) $\sqrt{5}:\sqrt{7}$ d) None of these

3. The angle between the normal to the parabola $y^2 = 24\,x$ at points $(6,12)$ and $(6,-12)$, is

a) 30° b) 45° c) 60° d) 90°

4. If the circle $C_1 : x^2 + y^2 = 16$ intersects another circle C_2 of radius 5 in such a manner that the common chord is of maximum length and has a slope equal to $3/4$, the coordinates of the centre of C_2 are

a) $(-9/5,12/5),(9/5,-12/5)$
b) $(-9/5,-12/5),(9/5,12/5)$
c) $(12/5,-9/5),(-12/5,9/5)$
d) None of these

5. The normal at the point $(bt_1^2, 2bt_1)$ on a parabola $y^2 = 4bv$ meets the parabola again int he point $(bt_2^2, 2bt_2)$, then

a) $t_2 = -t_1 - \frac{2}{t_1}$ b) $t_2 = -t_1 - \frac{2}{t_1}$ c) $t_2 = t_1 - \frac{2}{t_1}$ d) $t_2 = t_1 + \frac{2}{t_1}$

6. Equation of tangents to the ellipse $\frac{x^2}{9} + \frac{y^2}{4} = 1$, which are perpendicular to the line $3x + 4y = 7$, are

a) $4x - 3y = \pm 6\sqrt{5}$ b) $4x - 3y = \pm \sqrt{12}$ c) $4x - 3y = \pm \sqrt{2}$ d) $4x - 3y = \pm 1$

7. Any point on the hyperbola $\frac{(x+1)^2}{16} - \frac{(y-2)^2}{4} = 1$ is of the form

a) $(4\sec\theta, 2\tan\theta)$ b) $(4\sec\theta + 1, 2\tan\theta - 2)$
c) $(4\sec\theta - 1, 2\tan\theta - 2)$ d) $(4\sec\theta - 1, 2\tan\theta + 2)$

8. The distances from the foci of point $P(x_1,y_1)$ on the ellipse $\frac{x^2}{9} + \frac{y^2}{25} = 1$ are

a) $4 \pm \frac{5}{4}y_1$ b) $5 \pm \frac{4}{5}x_1$ c) $5 \pm \frac{4}{5}y_1$ d) None of these

9. The locus of the points of trisection of the double ordinates of the parabola $y^2 = 4ax$ is
a) $y^2 = ax$ b) $9\ y^2 = 4\ ax$ c) $9\ y^2 = ax$ d) $y^2 = 9\ ax$

10. The tangent drawn at any point P to the parabola $y^2 = 4ax$ meets the directrix at the point K, then the angle which KP subtends at its focus is
a) 30° b) 45° c) 60° d) 90°

11. The set of values of 'c' so that the equation $y = |x| + c$ and $x^2 + y^2 - 8|x| - 9 = 0$ have no solution, is
a) $(-\infty, -3) \cup (3, \infty)$ b) $(-3, 3)$
c) $(-\infty, 5\sqrt{2}) \cup (5\sqrt{2}, \infty)$ d) $(5\sqrt{2} - 4, \infty)$

12. The radius of the circle passing through the point $(6, 2)$ and two of whose diameters are $x + y = 6$ and $x + 2y = 4$, is
a) 4 b) 6 c) 20 d) $\sqrt{20}$

13. The coordinates of the point on the circle $x^2 + y^2 - 12x - 4y + 30 = 0$, which is farthest from the origin are
a) (9,3) b) (8,5) c) (12,4) d) None of these

14. The points of contact of tangents to the circle $x^2 + y^2 = 25$ which are inclined at an angle of 30° to the x-axis are
a) $(\pm 5/2, \pm 1/2)$ b) $(\pm 1/2, \pm 5/2)$ c) $(\mp 5/2, \mp 1/2)$ d) None of these

15. How many real tangents can be drawn to the ellipse $5x^2 + 9y^2 = 32$ form the point (2, 3)?
a) 2 b) 1 c) 0 d) 3

16. If the line $2x + \sqrt{6}y = 2$ touches the hyperbola $x^2 - 2y^2 = 4$, then the point of contact is
a) $(-2, \sqrt{6})$ b) $(-5, 2\sqrt{6})$ c) $\left(\frac{1}{2}, \frac{1}{\sqrt{6}}\right)$ d) $(4, -\sqrt{6})$

17. The locus of the mid-points of focal chords of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, is
a) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = \frac{x}{a^2}$ b) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = \frac{ex}{a^2}$ c) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = \frac{x^2}{a^4}$ d) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = \frac{ex}{a}$

18. The curve described parametrically by $x = t^2 + 2t - 1, y = 3t + 5$ represents
a) An ellipse b) A hyperbola c) A parabola d) A circle

19. The number of points on the circle $2(x^2 + y^2) = 3x$ which are a distance 2 from the point $(-2,1)$ is
a) 2 b) 0 c) 1 d) None of these

20. The number of normal drawn to the parabola $y^2 = 4x$ from the point (1,0) is

a) 0 b) 1 c) 2 d) 3