DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth
DATE :

Solutions

SUBJECT : MATHS
DPP NO. : 8

Topic :- CONIC SECTION

1. For an equilateral triangle the centre is the origin and the length of altitude is a. Then, the equation of the circumcircle is

a) $x^2 + y^2 = a^2$ b) $3x^2 + 3y^2 = 2a^2$ c) $x^2 + y^2 = 4a^2$ d) $9x^2 + 9y^2 = 4a^2$

2. the tangents drawn from the ends of latusrectum of $y^2 = 12x$ meets at

a) Directrix b) Vertex c) Focus d) None of these

3. If B and B' are the ends of minor axis and S and S' are the foci of the ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1$, then area of the rhombus $SBS'B'$ will be

a) 12. sq. units b) 48 sq. units c) 24 sq. units d) 36 sq. units

4. A point P moves so that sum of its distances from $(-ae,0)$ and $(ae,0)$ is $2a$. Then, the locus of P is

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

5. Tangents are drawn from the point on the line $x - y - 5 = 0$ to $x^2 + 4y^2 = 4$, then all the chords of contact pass through a fixed point, whose coordinates are

a) $\left(\frac{1}{5}, \frac{4}{5}\right)$ b) $\left(\frac{4}{5}, \frac{1}{5}\right)$ c) $\left(-\frac{4}{5}, -\frac{1}{5}\right)$ d) $\left(\frac{4}{5}, -\frac{1}{5}\right)$

6. If the chord $y = mx + c$ subtends a right angle at the vertex of the parabola $y^2 = 4\,ax$, then the value of c is

a) $-4am$ b) $4am$ c) $-2am$ d) $2am$

7. If the chord of contact of tangents drawn from a point on the circle $x^2 + y^2 = a^2$ to the circle $x^2 + y^2 = b^2$ touches the circle $x^2 + y^2 = c^2$, then a, b, c are in

a) AP b) GP c) HP d) None of these

8. The length of the subnormal to the parabola $y^2 = 4\,ax$ at any point is equal to

a) $a\sqrt{2}$ b) $2\sqrt{2}\,a$ c) $a/\sqrt{2}$ d) 2a

9. If P is a point such that the ratio of the tangents from P to the circles $x^2 + y^2 + 2x - 4y - 20 = 0$ and $x^2 + y^2 - 4x + 2y - 44 = 0$ is 2 :3, then the locus of P is a circle with centre

a) $(7, -8)$ b) $(-7, 8)$ c) $(7, 8)$ d) $(-7, -8)$

10. The intercepts on the line $y = x$ by the circle $x^2 + y^2 - 2x = 0$ is AB. Equation of the circle on AB as a diameter is

a) $x^2 + y^2 - x - y = 0$ b) $x^2 + y^2 - x + y = 0$

c) $x^2 + y^2 + x + y = 0$ d) $x^2 + y^2 + x - y = 0$

11. The equation of the normal at the point $(a\sec\theta, b\tan\theta)$ of the curve $b^2x^2 - a^2y^2 = a^2b^2$ is

a) $\frac{ax}{\cos\theta} + \frac{by}{\sin\theta} = a^2 + b^2$ b) $\frac{ax}{\tan\theta} + \frac{by}{\sec\theta} = a^2 + b^2$

c) $\frac{ax}{\sec\theta} + \frac{by}{\tan\theta} = a^2 + b^2$ d) $\frac{ax}{\sec\theta} + \frac{by}{\tan\theta} = a^2 - b^2$

12. The equation of normal to the circle $2x^2 + 2y^2 - 2x - 5y + 3 = 0$ at $(1, 1)$ is

a) $2x + y = 3$ b) $x - 2y = 3$ c) $x + 2y = 3$ d) None of these

13. The product of perpendicular distances from any point on the hyperbola $9x^2 - 16y^2 = 144$ to its asymptotes is

a) $\frac{25}{12}$ b) $\frac{144}{25}$ c) $\frac{144}{7}$ d) $\frac{25}{144}$

14. The two parabolas $y^2 = 4x$ and $x^2 = 4\,y$ intersect at a point P, whose abscissae is not zero, such that

a) They both touch each other at P

b) They cut at right angles at P

c) The tangents to each curve at P make complementary angles with the x-axis

d) None of these

15. If the four points of the intersection of the lines $2x - y + 11 = 0$ and $x - 2y + 3 = 0$ with the axes lie on a circle, then the coordinates of the centre of the circle are

a) $(7/5, 5/2)$ b) $(7/4, 5/4)$ c) $(-7/4, 5/4)$ d) $(7/4, -5/4)$

16. The radius of the circle passing through the foci of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ and having its centre $(0, 3)$ is

a) 4 b) $\frac{3}{7}$ c) $\sqrt{12}$ d) $\frac{7}{2}$

17. The curve with parametric equations $x = \alpha + 5\cos\theta$, $y = \beta + 4\sin\theta$ (where θ is parameter) is

a) A parabola b) An ellipse c) A hyperbola d) None of these

18. If p and q are the segments of a focal chord of an ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, then

a) $a^2(p + q) = 2bpq$ b) $b^2(p + q) = 2apq$ c) $a(p + q) = 2b^2pq$ d) $b(p + q) = 2a^2pq$

19. The curve with parametric equation $x = e^t + e^{-t}$ $y = e^t - e^{-t}$ and is

a) A circle b) An ellipse c) A hyperbola d) A parabola

20. The equation of the circle which passes through the points of intersection of the circles $x^2 + y^2 - 6x = 0$ and $x^2 + y^2 - 6y = 0$ and has its centre at $\left(\frac{3}{2}, \frac{3}{2}\right)$, is

a) $x^2 + y^2 + 3x + 3y + 9 = 0$ b) $x^2 + y^2 + 3x + 3y = 0$

c) $x^2 + y^2 - 3x - 3y = 0$ d) $x^2 + y^2 - 3x - 3y + 9 = 0$