

- 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) $-a$



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