DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth
DATE :

Solutions

SUBJECT : MATHS
DPP NO. : 7

Topic :- CONIC SECTION

1. The equation of the unit circle concentric with $x^2 + y^2.8x + 4y - 8 = 0$ is
   a) $x^2 + y^2 - 8x + 4y - 8 = 0$
   b) $x^2 + y^2 - 8x + 4y + 8 = 0$
   c) $x^2 + y^2 - 8x + 4y - 28 = 0$
   d) $x^2 + y^2 - 8x + 4y + 19 = 0$

2. If $(9a, 6a)$ is a point bounded in region formed by parabola $y^2 = 16x$ and $x = 9$, then
   a) $a \in (0,1)$ b) $a < \frac{1}{4}$ c) $a < 1$ d) $0 < a < 4$

3. If the coordinates of the vertices of an ellipse are $(-6,1)$ and $(4,1)$ and the equation of a focal chord passing through the focus on the right side of the centre is $2x - y - 5 = 0$. The equation of the ellipse is
   a) $\frac{(x+1)^2}{25} + \frac{(y+1)^2}{16} = 1$
   b) $\frac{(x+1)^2}{25} + \frac{(y-1)^2}{16} = 1$
   c) $\frac{(x-1)^2}{25} + \frac{(y+1)^2}{16} = 1$
   d) None of these

4. The radius of the circle $r = \sqrt{3}\sin\theta + \cos\theta$ is
   a) 1 b) 2 c) 3 d) 4

5. If the latusrectum of the hyperbola $\frac{x^2}{16} - \frac{y^2}{b^2} = 1$ is $\frac{9}{2}$, then its eccentricity is
   a) 4/5 b) 5/4 c) 3/4 d) 4/3

6. S and T are the foci of an ellipse and B is end point of the minor axis . If STB is an equilateral triangle, the eccentricity of the ellipse is
   a) $\frac{1}{4}$ b) $\frac{1}{3}$ c) $\frac{1}{2}$ d) $\frac{2}{3}$

7. The eccentricity of the hyperbola can never be equal to
   a) $\sqrt{\frac{9}{5}}$ b) $2\sqrt{\frac{1}{9}}$ c) $3\sqrt{\frac{1}{8}}$ d) 2

8. If the tangent at (α,β) to the hyperbola $\frac{x^2}{a^2}-\frac{y^2}{b^2}=1$ cuts the auxiliary circle at points whose ordinates are y_1 and y_2, then $\frac{1}{y_1}+\frac{1}{y_2}=$

a) $\frac{1}{\alpha}$ b) $\frac{2}{\alpha}$ c) $\frac{1}{\beta}$ d) $\frac{2}{\beta}$

9. The eccentricity of the hyperbola $\frac{\sqrt{1999}}{3}(x^2-y^2)=1$, is

a) $\sqrt{2}$ b) 2 c) $2\sqrt{2}$ d) $\sqrt{3}$

10. If the line $3x-4y-k=0$, $(k>0)$ touches the circle $x^2+y^2-4x-8y-5=0$ at (a, b), then $k+a+b$ is equal to

a) 20 b) 22 c) -30 d) -28

11. The length of the latusrectum of the parabola whose focus is (3,3) and directrix is $3x-4y-2=0$, is

a) 2 b) 1 c) 4 d) None of these

12. The equation of the tangent from the point (0, 1) to the circle $x^2+y^2-2x-6y+6=0$, is

a) $y-1=0$ b) $4x+3y+3=0$ c) $4x-3y-3=0$ d) $y+1=0$

13. The circles $x^2+y^2+6x+6y=0$ and $x^2+y^2-12x-12y=0$

a) Cut orthogonally
b) Touch each other internally
c) Intersect two points
d) Touch each other externally

14. If tangents at A and B on the parabola $y^2=4ax$ intersect at point C, then ordinates of A, C and B are

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

15. The equations of the asymptotes of the hyperbola $2x^2+5xy+2y^2-11x-7y-4=0$ are

a) $2x^2+5xy+2y^2-11x-7y-5=0$
b) $2x^2+4xy+2y^2-7x-11y+5=0$
c) $2x^2+5xy+2y^2-11x-7y+5=0$
d) None of the above

16. The circle $x^2+y^2+2g_1x-a^2=0$ and $x^2+y^2+2g_2x-a^2=0$ cut each other orthogonally. If p_1,p_2 are perpendicular from $(0, a)$ and $(0, -a)$ on a common tangent of these circles, then p_1p_2 is equal to

a) $\frac{a^2}{2}$ b) a^2 c) $2a^2$ d) a^2+2

17. If $(a\cos\alpha, b\sin\alpha)$, $(a\cos\beta, b\sin\beta)$ are the end points of a focal chord of an ellipse $b^2x^2+a^2y^2=a^2b^2$, then which of the following is correct?

a) $e=\frac{\sin\alpha-\sin\beta}{\sin(\alpha-\beta)}$
b) $e=\frac{\cos\left(\frac{\alpha-\beta}{2}\right)}{\cos\left(\frac{\alpha+\beta}{2}\right)}$
c) $\frac{e-1}{e+1}=\tan\frac{\alpha}{2}\tan\frac{\beta}{2}$
d) None of these

18. A line meets the coordinates axes in A and B. A circle is circumscribed about the ΔOAB. The distances from the points A and B of the side AB to the tangent at O are equal to m and n respectively. Then, the diameter of the circle is

a) $m(m+n)$ b) $n(m+n)$ c) $m-n$ d) None of these

19. A line L passing through the focus of the parabola $(y-2)^2 = 4(x+1)$ intersects the parabola in two distinct points. If m be the slope of the line L, then

a) $m \in (-1,1)$

b) $m \in (-\infty,-1) \cup (1,\infty)$

c) $m \in (-\infty,0) \cup (0,\infty)$

d) None of these

20. If $a > 2b > 0$, then the positive value of m fro which $y = mx - b\sqrt{1+m^2}$ is a common tangent to $x^2 + y^2 = b^2$ and $(x-a)^2 + y^2 = b^2$, is

a) $\frac{2b}{\sqrt{a^2-4b^2}}$ b) $\frac{\sqrt{a^2-4b^2}}{2b}$ c) $\frac{2b}{a-2b}$ d) $\frac{b}{a-2b}$