MATHS

Ellipse Worksheet for MAH MCA CET 2025

For students preparing for MCA Entrance Exam.

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1. The locus of the foot of the perpendicular from any focus upon any tangent to $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ is
   A. $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$
   B. $x^2+y^2=a^2+b^2$
   C. $x^2+y^2=a^2$
   D. None of these

2. The line $x=at^2$ meets the ellipse $\frac{x^2}{y^2}+\frac{y^2}{b^2}=1$, in the real point, if
   A. $|t|<2$
   B. $|t|\leq 1$
   C. $|t|>1$
   D. None of these

3. An ellipse has ___ vertices and _____ foci.
   A. two, one
   B. one, one
   C. one, two
   D. two, two

4. The locus of mid-points of the line segments joining (-3, -5) and the points on the ellipse $\frac{x^2}{4}+\frac{y^2}{9}=1$ is:
   A. $9x^2+4y^2+18x+8y+145=0$
   B. $36x^2+16y^2+90x+56y+145=0$
   C. $36x^2+16y^2+108x+80y+145=0$
   D. $36x^2+16y^2+72x+32y+145=0$

5. Let be θ the acute angle between the tangents to the ellipse $\frac{x^2}{9}+\frac{y^2}{1}=1$ and the circle $x^2+y^2=3$ at their point of intersection in the first quadrant. Then $\tan\theta$ is equal to:
   A. $\frac{5}{2\sqrt{3}}$
   B. $\frac{2}{\sqrt{3}}$
   C. $\frac{4}{\sqrt{3}}$
   D. 2

6. Find the coordinates of foci of ellipse $\left(\frac{x}{25}\right)^2+\left(\frac{y}{16}\right)^2=1$
   A. $(\pm 3, 0)$
   B. $(\pm 4, 0)$
   C. $(0, \pm 3)$
   D. $(0, \pm 4)$

7. Find the coordinates of foci of ellipse $\left(\frac{x}{16}\right)^2+\left(\frac{y}{25}\right)^2=1$
   A. $(\pm 3, 0)$
   B. $(\pm 4, 0)$
   C. $(0, \pm 3)$
   D. $(0, \pm 4)$

8. The length of the latus rectum of an ellipse is one third of the major axis, its eccentricity would be
   A. $\frac{2}{3}$
   B. $\frac{1}{\sqrt{2}}$
   C. $\sqrt{(\frac{2}{3})}$
   D. $\frac{1}{\sqrt{3}}$

9. If the latus-rectum of an ellipse is one half of its minor axis, then its eccentricity is
   A. $\frac{1}{2}$
   B. $\frac{\sqrt{3}}{2}$
   C. $\frac{1}{\sqrt{2}}$

D. $\frac{\sqrt{3}}{4}$

10. The minimum length of intercept on any tangent to the ellipse $\frac{x^2}{4}+\frac{y^2}{9}=1$ cut by the circle $x^2+y^2=25$ is:

A. 8
B. 9
C. 2
D. 11

11. The point on the ellipse $x^2+2y^2=6$, whose distance from the line $x+y=7$ is minimum is:

A. (2,3)
B. (2,1)
C. (1,0)
D. None of these

12. If the $2x+3y=10$ and $2x-3y=10$ are tangents at the extremities of a latus rectum of an ellipse; whose centre is origin, then the length of the latus rectum is:

A. $\frac{110}{27}$
B. $\frac{98}{27}$
C. $\frac{100}{27}$
D. $\frac{120}{27}$

13. The area of bounded by the circle $x^2+y^2=a^2$ and the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ is equal to the area of another ellipse having semi-axes:

A. a + b and b
B. a – b and a
C. a and b
D. None of these

14. If area of the ellipse $\frac{x^2}{16}+\frac{y^2}{b^2}=1$ inscribed in a square of side length $5\sqrt{2}$ is A, then $\frac{A}{\pi}$ equals to:

A. 12
B. 10
C. 8
D. 11

15. Any chord of the conic $x^2+y^2+xy=1$ passing through origin is bisected at a point (p, q), then (p+q+12) equals to:

A. 13
B. 14
C. 11
D. 12

16. Tangent are drawn from the point (4,2) to the curve $x^2+9y^2=9$, the tangent of angle between the tangents:

A. $\frac{3\sqrt{3}}{5\sqrt{17}}$
B. $\frac{\sqrt{43}}{10}$
C. $\frac{\sqrt{43}}{5}$
D. $\sqrt{\frac{3}{17}}$

Answer Key

1. C	2. B	3. D	4. C	5. B	6. A	7. C	8. A	9. B	10. A
11. B	12. C	13.B	14. A	15. D	16. C				