

# MATHS

## Parabola Worksheet for MAH MCA CET 2025

For students preparing for MCA Entrance Exam.

- The focus of the parabola  $y^2 - x - 2y + 2 = 0$ 
  - $3/4$
  - $5/4$
  - $4/5$
  - $1/5$
- Find the co-ordinate of the point on the parabola  $y^2 = 8x$  and whose focal distance is 4.
  - $(2, -4)$
  - $(2, +4)$
  - $(2, \pm 4)$
  - $(-2, \pm 4)$
- Write the parametric equations of the parabola  $(y-1)^2 = 12(x+1)$ 
  - $x = 3t^2 - 1$  and  $y = 6t + 1$
  - $x = 3t^2 + 1$  and  $y = 6t - 1$
  - $x = 3t^2 - 1$  and  $y = t + 1$
- The position of point  $(-1, 7)$  lies relative to the parabola  $y^2 = 12x$  is
  - Outside
  - Inside
  - On
  - None of these
- The length of the latusrectum of the parabola  $x^2 - 4x - 8y + 12 = 0$ 
  - 4
  - 6
  - 8
  - 10
- The point of the parabola  $y^2 = 18x$  for which the ordinate is three times the abscissa, is
  - $(6, 2)$
  - $(-2, -6)$
  - $(3, 18)$
  - $(2, 6)$
- The equations of the parabola with vertex at the origin and directrix  $y = 2$  is
  - $y^2 = 8x$
  - $y^2 = -8x$
  - $y^2 = \sqrt{8}x$
  - $x^2 = -8y$
- If a focal chord of the parabola  $y^2 = ax$  is  $2x - y - 8 = 0$ , then the equation of the directrix is
  - $x + 4 = 0$
  - $x - 4 = 0$
  - $y - 4 = 0$
  - $y + 4 = 0$
- If the line  $x + y - 1 = 0$ , is a tangent to the parabola  $y^2 - y + x = 0$ , then the point of contact is
  - $(0, 1)$
  - $(1, 0)$
  - $(0, -1)$
  - $(-1, 0)$
- The point at which the line  $y = mx + c$  touches the parabola  $y^2 = 4ax$  is
  - $(\frac{a}{m^2}, \frac{2a}{m})$
  - $(\frac{a}{m^2}, -\frac{2a}{m})$
  - $(-\frac{a}{m^2}, \frac{2a}{m})$
  - $(-\frac{a}{m^2}, -\frac{2a}{m})$
- The focal distance of a point on the parabola  $y^2 = 8x$  is 4. Its ordinates are
  - $\pm 1$
  - $\pm 2$
  - $\pm 3$

D.  $\pm 4$

C. 4

D.  $1/4$

12. What is the slope of the normal at the point  $(at^2, 2at)$  of the parabola  $y^2 = 4ax$ ?

A.  $\frac{1}{t}$

B.  $t$

C.  $-t$

D.  $-\frac{1}{t}$

19. Find the equation of the parabola with focus  $(2,0)$  and directrix  $x = -2$ .

A.  $y^2 = 4x$

B.  $y^2 = 3x$

C.  $y^2 = 8x$

D.  $y^2 = 10x$

13. The equation of directrix of the parabola  $x^2 + 4x + 4y + 8 = 0$

A.  $y = -1$

B.  $y = 1$

C.  $y = 0$

D.  $y = 3/2$

20. Find the equation of the parabola with vertex at  $(0, 0)$  and focus at  $(0, 2)$ .

A.  $x^2 = 8y$

B.  $x^2 = 4y$

C.  $x^2 = 2y$

D.  $x^2 = 6y$

14. The value of  $k$  for which the line  $x + y + 1 = 0$  touches the parabola  $y^2 = kx$  is

A.  $-4$

B.  $4$

C.  $2$

D.  $-2$

15. The tangent to the parabola  $y^2 = 4x$  at the point  $(1,2)$  and  $(4,4)$  meets on the line

A.  $x = 3$

B.  $x + y = 4$

C.  $y = 3$

D. None of these

16. The number of tangents to the parabola  $y^2 = 8x$  through  $(2,1)$  is

A. 0

B. 1

C. 2

D. None of these

17. If the point  $P(4, -2)$  is one end of the focal chord  $PQ$  of the parabola  $y^2 = x$ , then the slope of the tangent at  $Q$  is

A.  $-1/4$

B.  $1/4$

C. 4

D.  $-4$

18. If the line  $x - 1 = 0$  is the directrix of the parabola  $y^2 - kx + 8 = 0$ , then one of the values of  $k$  is

A.  $1/8$

B. 8

### Answer Key

1. B	2. C	3. A	4. A	5. C	6. D	7. D	8. A	9. A	10. B
11. D	12. C	13. C	14. B	15. C	16. A	17. C	18. C	19. C	20. A

