

JEE MATHEMATICS*Topic: Parabola*

- Q.1** The equation of the directrix of the parabola $x^2 = -8y$ is
- (A) $x = 2$ (B) $y = 2$
(C) $y = -2$ (D) $x = -2$
- Q.2** The equation to the parabola whose focus is $(0, -3)$ and directrix is $y = 3$ is
- (A) $x^2 = -12y$ (B) $x^2 = 12y$
(C) $y^2 = 12x$ (D) $y^2 = -12x$
- Q.3** If $(0, 0)$ be the vertex and $3x - 4y + 2 = 0$ be the directrix of a parabola, then the length of its latus rectum is
- (A) $4/5$ (B) $2/5$
(C) $8/5$ (D) $1/5$
- Q.4** If $2x + y + \lambda = 0$ is a focal chord of the parabola $y^2 = -8x$, then the value of λ is
- (A) -4 (B) 4
(C) 2 (D) -2
- Q.5** The focal distance of a point (x_1, y_1) on the parabola $y^2 = 12x$ is
- (A) $x_1 + 3$ (B) $x_1 + 6$
(C) $y_1 + 6$ (D) $y_1 + 3$

- Q.6** The vertex of a parabola is (a,b) and its latus rectum is l . If the axis of the parabola is along the positive direction of y -axis, then its equation is-
- (A) $(x + a)^2 = \left(\frac{l}{4}\right) (2y - 2b)$
- (B) $(x - a)^2 = \left(\frac{l}{2}\right) (2y - 2b)$
- (C) $(x + a)^2 = \left(\frac{l}{2}\right) (2y - 2b)$
- (D) $(x - a)^2 = \left(\frac{l}{8}\right) (2y - 2b)$
- Q.7** The length of latus rectum of the parabola $x^2 = -y$ is-
- (A) 1 (B) $1/4$
- (C) 4 (D) $1/2$
- Q.8** The distance between the focus and the directrix of the parabola $x^2 = -8y$, is-
- (A) 8 (B) 2
- (C) 4 (D) 6
- Q.9** If focus of the parabola is $(3,0)$ and length of latus rectum is 8, then its vertex is-
- (A) $(2, 0)$ (B) $(1, 0)$
- (C) $(0, 0)$ (D) $(-1, 0)$
- Q.10** For any parabola focus is $(2,1)$ and directrix is $2x - 3y + 1 = 0$, then equation of the latus rectum is-
- (A) $3x + 2y + 8 = 0$
- (B) $2x - 3y - 1 = 0$
- (C) $2x - 3y + 1 = 0$
- (D) $3x - 2y + 4 = 0$

- Q.11** If (a, b) is the mid point of a chord passing through the vertex of the parabola $y^2 = 4x$, then-
- (A) $a = 2b$ (B) $2a = b$
(C) $a^2 = 2b$ (D) $2a = b^2$
- Q.12** The area of the triangle formed by the lines joining the vertex of the parabola $x^2 = 12y$ to the ends of its latus rectum is-
- (A) 16 sq. units (B) 12 sq. units
(C) 18 sq. units (D) 24 sq. units
- Q.13** Vertex of the parabola $9x^2 - 6x + 36y + 9 = 0$ is-
- (A) $(1/3, -2/9)$ (B) $(-1/3, 1/2)$
(C) $(-1/3, -1/2)$ (D) $(1/3, 1/2)$
- Q.14** The equation of the latus rectum of the parabola $x^2 + 4x + 2y = 0$ is-
- (A) $3y = 2$ (B) $2y + 3 = 0$
(C) $2y = 3$ (D) $3y + 2 = 0$
- Q.15** The focus of the parabola $y^2 - x - 2y + 2 = 0$ is-
- (A) $(1, 2)$ (B) $(1/4, 0)$
(C) $(3/4, 1)$ (D) $(5/4, 1)$
- Q.16** Vertex of the parabola $y^2 + 2y + x = 0$ lies in the quadrant
- (A) Second (B) First
(C) Third (D) Fourth

Q.17 The equation of the axis of the parabola $x^2 - 4x - 3y + 10 = 0$ is

- (A) $y + 2 = 0$ (B) $x + 2 = 0$
(C) $x - 2 = 0$ (D) $y - 2 = 0$

Q.18 The vertex of the parabola $x^2 + 4x + 2y - 7 = 0$ is-

- (A) $(-2, 2)$ (B) $(2, 11)$
(C) $(-2, 11)$ (D) $(-2, 11/2)$

Q.19 The latus rectum of the parabola

$$y^2 - 4y - 2x - 8 = 0 \text{ is-}$$

- (A) 3 (B) 2
(C) 1 (D) 4

Q.20 The point of intersection of the latus rectum and axes of the parabola $y^2 + 4x + 2y - 8 = 0$ is

- (A) $(5/4, -1)$ (B) $(7/5, 5/2)$
(C) $(9/4, -1)$ (D) None of these

Q.21 The length of the latus rectum of the parabola $x = ay^2 + by + c$ is-

- (A) $\frac{a}{4}$ (B) $\frac{a}{3}$
(C) $\frac{1}{a}$ (D) $\frac{1}{4a}$

Q.22 Which of the following is not the equation of parabola

- (A) $4x^2 + 9y^2 - 12xy + x + 1 = 0$ (B) $4x^2 - 12xy + 9y^2 + 3x + 5 = 0$
(C) $2x^2 + y^2 - 4xy = 8$ (D) $4x^2 + 9y^2 - 12xy + x + 1 = 0$

Q.23 Which one is the equation of the parabola

(A) $(x - y)^2 = 2$ (B) $\frac{x}{y} + \frac{24}{x} = 0$

(C) $\frac{x}{y} - \frac{y}{x} = 0$ (D) $2x^2 + 5y^2 = 7$

Q.24 The equation $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ represents a parabola, if-

(A) $a = b = 1, h = 0$

(B) $a = b, h = 0$

(C) $h^2 = ab$

(D) None of these

Q.25 Given the ends of latus rectum, the number of parabolas that can be drawn is-

(A) 0

(B) 1

(C) 2

(D) 3

Q.26 If $(0, a)$ be the vertex and $(0, 0)$ be the focus of a parabola then its equation will be

(A) $y^2 = 4a(a + x)$

(B) $x^2 = 4a(a - y)$

(C) $x^2 = 4a(a + y)$

(D) $y^2 = 4a(a - x)$

Q.27 If vertex and focus of a parabola are on x- axis and at distances p and q respectively from the origin, then its equation is-

(A) $y^2 = -4(p - q)(x + p)$

(B) $y^2 = 4(p - q)(x - p)$

(C) $y^2 = -4(p - q)(x - p)$

(D) None of these

Q.28 Find the equation of the parabola having the vertex at $(0, 1)$ and the focus at $(0, 0)$

(A) $x^2 + 4y - 4 = 0$

(B) $x^2 + 4y + 4 = 0$

(C) $x^2 - 4y + 4 = 0$

(D) $x^2 - 4y - 4 = 0$

Q.29 If $(2, 0)$ and $(5, 0)$, are the vertex and focus of a parabola respectively then its equation is

(A) $y^2 = -12x - 24$

(B) $y^2 = 12x - 24$

(C) $y^2 = 12x + 24$

(D) $y^2 = -12x + 24$

Q.30 $x - 2 = t^2$, $y = 2t$ are the parametric equations of the parabola-

(A) $y^2 = -4x$

(B) $y^2 = 4x$

(C) $x^2 = -4y$

(D) $y^2 = 4(x - 2)$

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	B	A	C	B	A	B	A	C	B	B
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	D	C	A	C	D	D	C	D	B	A
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	C	C	B	C	C	B	C	A	B	D