Chapter

6

# CONIC SECTION

## OBJECTIVE

(1) The equation of circle whose center is g & f radius is _____ ***(Lahore Board 2009)***

(a) $\sqrt{g^2 - f^2 - c}$ (b) $\sqrt{g^2 + f^2 - c}$

(c) $\sqrt{g^2 - f^2 + c}$ (d) $\sqrt{g^2 + f^2 + c}$

(2) The directrix of parabola $y^2 = 8x$ is _____

(a) $x = -2$ (b) $x = 2$

(c) $y = -2$ (d) $y = 2$

(3) Equation of tangent to the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ is _____

(a) $y - y_1 = m(x - x_1)$ (b) $y = \frac{c}{m}$

(c) $\frac{xx_1}{a^2} + \frac{yy_1}{b^2} = 1$ (d) none of these

(4) Transverse axis of hyperbola $\frac{y^2}{a^2} - \frac{x^2}{b^2} = 1$ is _____

(a) x – axis (b) y – axis

(c) z – axis (d) none of these

(5) Parabola $y^2 = x$ passes through _____

(a) $1^{st}$ quadrant (b) origin

(c) $2^{nd}$ quadrant (d) none

(6) Eccentricity of hyperbola is always _____ ***(Lahore Board 2007, 2010, 2013)***

(a) $= 1$ (b) $< 1$

(c) $> 1$ (d) $\geq 1$

(7) Focus of parabola $y^2 = -12x$ is _____

(a) $(0, -3)$ (b) $(3, 0)$

(c) $(-3, 0)$ (d) $(0, 0)$

(8) The tangents of the ellipse are $y = mx +$ _____

(a) $\pm\sqrt{m^2a^2 + b^2}$ (b) $\pm\sqrt{m^2a^2 - b^2}$

(c) $\frac{a}{m}$ (d) none of these

(9) Vertices of hyperbola $\frac{y^2}{a^2} - \frac{x^2}{b^2} = 1$ are _____

(a) $(\pm a, 0)$ (b) $(0, \pm a)$

(c) $(0, \pm b)$ (d) $(\pm b, 0)$

(10) If $e = 1$, conic is _____

(a) circle (b) parabola

(c) ellipse (d) hyperbola

(11) Parametric equations of $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ are _____

(a) $x = at^2,\ y = 2at$ (b) $x = r\cos\theta,\ y = r\sin\theta$

(c) $x = a\sec\theta,\ y = b\tan\theta$ (d) $x = a\cos\theta,\ y = b\sin\theta$

(12) Equation of tangent of $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ is $y = mx +$ _____

(a) $\pm\sqrt{a^2m^2 + b^2}$ (b) $\sqrt{a^2m^2 - b^2}$

(c) $\frac{a}{m}$ (d) $\frac{c}{m}$

(13) For $\frac{x^2}{16} - \frac{y^2}{25} = 1$ $c$ = _____ ***(Lahore Board 2007)***

(a) 16 (b) 25

(c) 1 (d) $\sqrt{41}$

(14) Ellipse and hyperbola are called _____ conics.

(a) central (b) focal

(c) vertical (d) none of these

(15) In ellipse, length of major axis is _____ ***(Lahore Board 2008)***

(a) $4a$ (b) $2a$

(c) $\frac{2b^2}{a}$ (d) none of these

(16) Equation of directrix of $y^2 = 4ax$ is _____

(a) $x = a$ (b) $x = -a$

(c) $y = a$ (d) $y = -a$

(17) Equation of tangent of $y^2 = 4ax$ is _____

(a) $\frac{xx_1}{a^2} + \frac{yy_1}{b^2} = 1$ (b) $\frac{xx_1}{a^2} - \frac{yy_1}{b^2} = 1$

(c) $yy_1 = 2a(x + x_1)$ (d) none of these

(18) Directrix of $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ are _____ ***(Gujranwala Board 2007)***

(a) $y = \pm\frac{a}{e}$ (b) $x = \pm\frac{a}{e}$

(c) $x = \frac{a}{e}$ (d) $y = \frac{a}{e}$

(19) Length of latusrectum of $\frac{x^2}{9} + \frac{y^2}{4} = 1$ is _____ ***(Gujranwala Board 2007)***

(a) $\frac{2b^2}{a}$ (b) $4a$

(c) $\frac{8}{3}$ (d) none

(20) Eccentricity of parabola is _____ ***(Gujranwala Board 2006)***

(a) $e = 0$ (b) $e = 1$

(c) $e < 1$ (d) $e > 1$

(21) Centre of circle $(x - 1)^2 + (y + 3)^2 = 3$ is _____ ***(Gujranwala Board 2007)***

(a) $(0, 0)$ (b) $(-1, 3)$

(c) $(1, -3)$ (d) $(-1, -3)$

(22) Vertices of $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ are _____ ***(Lahore Board 2007)***

(a) $(0, \pm a)$ (b) $(\pm a, 0)$

(c) $(0, \pm b)$ (d) $(\pm b, 0)$

(23) Focus of parabola $x^2 = 4ay$ is _____ ***(Gujranwala Board 2006)***

(a) $(0, 0)$ (b) $(0, a)$

(c) $(a, 0)$ (d) $(b, 0)$

(24) $y = \pm \frac{b}{a} x$ are _____ of hyperbola.

(a) asymptotes (b) tangents
(c) centre (d) none of these

(25) If circle $x^2 + y^2 - 3x - 2y + c = 0$ passes through origin then c = ___ ***(Lahore Board 2009)***

(a) $-1$ (b) $-1$
(c) 0 (d) $\infty$

(26) Length of diameter of circle $x^2 + y^2 = a^2$ is _____ ***(Lahore Board 2006)***

(a) a (b) $a^2$
(c) zero (d) 2a

(27) Center of ellipse $x^2 + 4y^2 = 16$ is _____

(a) (0, 4) (b) (0, 0)
(c) (0, 16) (d) (4, 16)

(28) If $r = 0$ then $x^2 + y^2 = r^2$ is called _____ circle.

(a) point (b) zero
(c) small (d) large

(29) _____ of hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ are $(\pm a, 0)$.

(a) focus (b) vertices
(c) covertices (d) none of these

(30) Distance between vertex and focus of $y^2 = 4ax$ is _____

(a) zero (b) 4a
(c) a (d) 4

(31) Mid point of foci F and F′ of ellipse is called _____

(a) vertex (b) center
(c) focus (d) directrix

(32) Foci of an ellipse always lie on _____ ***(Gujranwala Board 2006)***

(a) major axis (b) minor axis
(c) covertices (d) none of these

(33) Length of latus rectum of ellipse are _____

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

(34) Equation of latus rectum of $y^2 = 4ax$ is _____

(a) $y = a$ (b) $y = -a$

(c) $x = -a$ (d) $x = a$

(35) The two separate parts of hyperbola are called _____ ***(Gujranwala Board 2009)***

(a) branches (b) parts

(c) curves (d) directrix

(36) Vertex of parabola $(x-2)^2 = 8(y+1)$ is _____

(a) $(2, -1)$ (b) $(-2, 1)$

(c) $(0, 0)$ (d) $(0, 0)$

(37) A line segment whose end points lie on a circle called _____

(a) diameter (b) radius

(c) chord (d) none of these

(38) Eccentricity of $\frac{x^2}{16} + \frac{y^2}{9} = 1$ is _____

(a) $\frac{\sqrt{7}}{4}$ (b) $\frac{4}{5}$

(c) $-\frac{\sqrt{7}}{4}$ (d) none of these

(39) The value of 'a' for which the parabola $y^2 = 4ax$ passes through the point $(2, 3)$ is _____

(a) 8 (b) 6

(c) 5 (d) $\frac{9}{8}$

(40) If $\frac{x^2}{36} + \frac{y^2}{49} = 1$ then end of minor axis are _____

(a) $(\pm 6, 0)$ (b) $(0, \pm 6)$

(c) $(0, \pm 7)$ (d) $(\pm 7, 0)$

(41) Parabola $y^2 = 4ax$ opens _____ ***(Lahore Board 2009)***

(a) upward (b) downward

(c) right side (d) left side

(42) Parabola $y^2 = -4ax$ opens _____

(a) upward (b) down ward

(c) right side (d) left side

(43) $x^2 = 4ay$ opens _____

(a) upward (b) down ward

(c) right side (d) left side

(44) $x^2 = -4ay$ opens _____

(a) upward (b) downward

(c) right side (d) left side

(45) The foci of hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is _____

(a) $(\pm a, 0)$ (b) $(\pm c, 0)$

(c) $(0, \pm c)$ (d) $(0, \pm a)$

(46) The equation $ax^2 + by^2 + 2hxy + 2gx + 2fy + c = 0$ represents a circle if _____ ***(Lahore Board 2009)***

(a) $a = b, h = 0$ (b) $a \neq b, h = 0$

(c) $a = b, h \neq 0$ (d) none of these

(47) Length of latusrectum of ellipse is _____

(a) a (b) 4a

(c) $\frac{2b^2}{a}$ (d) none of these

(48) Eccentricity of hyperbola is _____

(a) $e = 0$ (b) $e = 1$

(c) $e > 1$ (d) $e < 1$

(49) The center of circle $45x^2 + 45y^2 - 60x + 36y + 19 = 0$ is ___ ***(Lahore Board 2009)***

(a) (0, 0) (b) (60, 36)

(c) (– 60, 36) (d) $\left(\frac{2}{3}, \frac{-2}{5}\right)$

(50) $Ax^2 + By^2 + Gx + Fy + C = 0$ form a circle if _____

(a) $A \neq B$ (b) $A = B = 0$

(c) $A = B \neq 0$ (d) none of these

(51) $Ax^2 + By^2 + Gx + Fy + C = 0$ form parabola if _____

(a) $A \neq B$ (b) $A = 0$ or $B = 0$

(c) $A = B \neq 0$ (d) none of these

(52) $Ax^2 + By^2 + Gx + Fy + C = 0$ form hyperbola if _____

(a) $A \neq B$ , both have same signs (b) $A \neq B$, both have opposite signs

(c) $A = B$ (d) none of these

(53) $Ax^2 + By^2 + Gx + Fy + C = 0$ form ellipse if

(a) $A \neq B$ , both have same signs (b) $A \neq B$, both have opposite signs

(c) $A = B$ (d) none of these

(54) Most general form of 2nd degree $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ form a circle if _____

(a) $a = b, h = 0$ (b) $a = b, h \neq 0$

(c) $a \neq b , h = 0$ (d) none of these

(55) Most general form of 2nd degree $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ form a parabola if _____

(a) $h^2 - ab < 0$ (b) $h^2 - ab = 0$

(c) $h^2 - ab > 0$ (d) none of these

(56) Most general form of 2nd degree $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ form a hyperbola if _____

(a) $h^2 - ab < 0$ (b) $h^2 - ab = 0$

(c) $h^2 - ab > 0$ (d) none of these

(57) Center of circle $x^2 + y^2 + 12x - 10y = 0$ is _____

(a) $(-6, -5)$ (b) $(6, -5)$

(c) $(6, 5)$ (d) $(-6, 5)$

(58) Vertices of ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, $a > b$ are

(a) $(\pm a, 0)$ (b) $(0, \pm a)$

(c) $(\pm b, 0)$ (d) $(0, \pm b)$

(59) Homogenous second degree equation $ax^2 + 2hxy + by^2 = 0$ represents two real and distinct lines through origin if

(a) $h^2 > ab$ (b) $h^2 = ab$

(c) $h^2 < ab$ (d) $h^2 = a + b$

(60) Eccentricity of hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is _____ ***(Lahore Board 2009)***

(a) $\frac{\sqrt{a^2 - b^2}}{a}$ (b) $\frac{\sqrt{a^2 + b^2}}{a}$

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

(61) Eccentricity of ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ is _____

(a) $\frac{\sqrt{a^2-b^2}}{a}$ (b) $\frac{\sqrt{a^2+b^2}}{a}$

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

(62) The equation of the focal chord of the parabola $y^2 = 3x$ is _____

(a) $y=\frac{3}{4}$ (b) $x=\frac{7}{4}$

(c) $y=\frac{7}{4}$ (d) none of these

(63) If eccentricity is less than 1, then conic is

(a) an ellipse (b) a circle

(c) a parabola (d) a hyperbola

(64) The eccentricity of rectangular hyperbola is

(a) $e > 1$ (b) $e=\sqrt{2}$

(c) $e = 1$ (d) $e = 0$

(65) The line which never meet the conic is _____

(a) axis (b) latus-rectum

(c) directrix (d) tangent

(66) The line $y = mx + c$ is tangent to $x^2 = -4ay$ if

(a) $c = \frac{a}{m}$ (b) $c = \frac{-a}{m}$

(c) $c = am^2$ (d) $c = -am^2$

(67) The point of a parabola, which is closest to the focus is __ ***(Gujranwala Board 2008)***

(a) center (b) vertex

(c) covertex (d) none of these

(68) If the cutting plane is parallel to the axis of the cone and intersection both of its nappes, the curve of intersection is _____

(a) circle (b) ellipse

(c) hyperbola (d) parabola

(69) If $e = 0$, then conic is called _____

(a) circle (b) parabola

(c) ellipse (d) hyperbola

(70) Condition for the line $y = mx + c$ to be tangent to circle if ***(Lahore Board 2007)***

(a) $c = \frac{a}{m}$ (b) $c^2 = a^2 (1 + m^2)$

(c) $c^2 = a^2 (1 - m^2)$ (d) none of these

(71) The foci of a circle tends to the _____

(a) center (b) vertex

(c) covertex (d) directrix

(72) The equation of parabola with focus $(0, -a)$, directrix $y = a$ is

(a) $x^2 = -4ay$ (b) $x^2 = 4ay$

(c) $y^2 = 4ax$ (d) $y^2 = -4ax$

(73) The line segment through focus and perpendicular to axis

(a) directrix (b) minor axis

(c) latus-rectum (d) axis

(74) The greatest distance between focus and any point on ellipse is _____

(a) $a + b$ (b) $b + c$

(c) $a + b + c$ (d) $a + c$

(75) The number of tangents drawn from $(2, 6)$ to $x^2 + y^2 = 16$ is

(a) 16 (b) 4

(c) 0 (d) 2

(76) $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is the equation of rectangular hyperbola if

(a) $a = c$ (b) $b = c$

(c) $a = b$ (d) $a = b = c$

(77) The eccentricity of ellipse follows the relation

(a) $e = 0$ (b) $e > 1$

(c) $0 \leq e < 1$ (d) $0 < e < 1$

(78) If F and F′ are two fixed points and p(x, y) be any point and p(x, y) be any point on the conic, then conic is hyperbola if ***(Gujranwala Board 2008)***

(a) $|PF| = |PF'|$ (b) $|PF| - |PF'| = \pm 2a$

(c) $|PF| + |PF'| = 2a$ (d) $|PF| - |PF'| = 2a$

(79) The equation of asymptotes of $x^2 - y^2 = 9$ is

(a) $y = \pm 3$ (b) $x = \pm 3$

(c) $y = \pm x$ (d) $y = 0 = x$

(80) The term which is not part of circle is

(a) $x^2$ (b) $y^2$

(c) $ax + by$ (d) $xy$

(81) Two circles $S_1(c_1, r_1)$, $S_2(c_2, r_2)$ touches internally if

(a) $|c_1\ c_2| = r_1 + r_2$ (b) $|c_1\ c_2| = r_2 - r_1$

(c) $|c_1\ c_2| = 0$ (d) $|c_1\ c_2| \neq r_2 - r_1$

(82) Two circles $S_1(c_1, r_1)$, $S_2(c_2, r_2)$ touches externally if

(a) $|c_1\ c_2| = r_1 + r_2$ (b) $|c_1\ c_2| = r_2 - r_1$

(c) $|c_1\ c_2| = 0$ (d) $|c_1\ c_2| \neq r_2 - r_1$

(83) The position of the point (5, 6) w.r.t the circle $2x^2 + 2y^2 + 12x - 8y + 1 = 0$

(a) inside (b) outside

(c) on the circle (d) none of these

(84) Length of tangent from p(– 5, 10) to circle $5x^2 + 5y^2 + 14x + 12y - 10 = 0$ is ___

(a) 5 (b) 15

(c) $\sqrt{133}$ (d) 133

(85) Which of the following are functions.

(a) $x^2 = 4ay$ (b) $x^2 = -4ay$

(c) $y^2 = 4ax$ (d) both a and b

(86) Length of Minor axis of $\frac{x^2}{b^2} + \frac{y^2}{a^2} = 1$ $a > b$ is ***(Lahore Board 2012)***

(a) a (b) b

(c) 2a (d) 2b

(87) Center of circle $x^2 + y^2 + 4x + by + 3 = 0$ ***(Lahore Board 2012)***

(a) (2, 3) (b) ( – 2, 3)

(c) (– 2, – 3) (d) (2, – 3)

(88) Directrix of Parabola $y^2 = 4ax$ is ***(Lahore Board 2012)***

(a) $x = a$ (b) $x = -a$

(c) $y = a$ (d) $y = -a$

(89) Length of latusrectum is $9x^2 + 4y^2 = 36$ is ***(Lahore Board 2012)***

(a) $\frac{3}{8}$ (b) $\frac{8}{3}$

(c) $\frac{3}{4}$ (d) $\frac{4}{3}$

(90) For hyperbola ***(Lahore Board 2012)***

(a) $c^2 = a^2 - b^2$ (b) $c^2 = a^2 + b^2$

(c) $b^2 = a^2 + c^2$ (d) $a^2 = b^2 + c^2$

(91) Center of circle $x^2 + y^2 + 8x - 6y + 37 = 0$ is ***(Lahore Board 2012)***

(a) $(4, 3)$ (b) $(-4, 3)$

(c) $(-4, -3)$ (d) $(4, -3)$

(92) The slope of tangent line to $y = f(x)$ at $(x_1, y_1)$ is ***(Lahore Board 2013)***

(a) $m$ (b) $\frac{y_2 - y_1}{x_2 - x_1}$

(c) $f'(x)$ (d) $\frac{-dx}{dy}$

(93) Center of circle $4x^2 + 4y^2 - 8x + 6y - 25 = 0$ is ***(Lahore Board 2013)***

(a) $\left(1, \frac{-3}{2}\right)$ (b) $\left(\frac{-3}{2}, 1\right)$

(c) $(1, -2)$ (d) $(1, 2)$

(94) Foci of ellipse $\frac{x^2}{16} + \frac{y^2}{12} = 1$ are

(a) $(\pm 1, 0)$ (b) $(0, \pm 1)$

(c) $(\pm 2, 0)$ (d) $(0, \pm 2)$

(95) Foci of ellipse $\frac{x^2}{b^2} + \frac{y^2}{a^2} = 1$ where $a^2 - b^2 = c^2$ are

(a) $(\pm c, 0)$ (b) $(0, \pm c)$

(c) $(c, \pm c)$ (d) $(\pm c, c)$

(96) The centre of circle $(x + 3)^2 + (y - 2)^2 = 16$ equals

(a) $(-3, 2)$ (b) $(3, -2)$

(c) $(3, 2)$ (d) $(-3, -2)$

(97) The eccentricity of $\frac{y^2}{4} - x^2 = 1$ equals

(a) $\frac{2}{\sqrt{5}}$ (b) $\frac{-2}{\sqrt{5}}$

(c) $\frac{\sqrt{5}}{2}$ (d) $\frac{-\sqrt{5}}{2}$

(98) The radius of circle $x^2 + y^2 + 2gx + 2fy + c = 0$ is,

(a) $\sqrt{g^2 + f^2}$ (b) $\sqrt{g^2 - f^2 + c}$

(c) $\sqrt{g^2 + f^2 + c}$ (d) $\sqrt{g^2 + f^2 - c}$

(99) The vertex of parabola $(x - 1)^2 = 8(y + 2)$ is:

(a) $(1, -2)$ (b) $(0, 1)$

(c) $(-1, -2)$ (d) $(1, 2)$

[redacted]

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *1.* | *b* | *2.* | *a* | *3.* | *c* | *4.* | *b* | *5.* | *b* | *6.* | *c* |
| *7.* | *c* | *8.* | *a* | *9.* | *b* | *10.* | *b* | *11.* | *c* | *12.* | *a* |
| *13.* | *d* | *14.* | *a* | *15.* | *b* | *16.* | *a* | *17.* | *c* | *18.* | *b* |
| *19.* | *c* | *20.* | *b* | *21.* | *c* | *22.* | *b* | *23.* | *b* | *24.* | *a* |
| *25.* | *c* | *26.* | *d* | *27.* | *b* | *28.* | *a* | *29.* | *b* | *30.* | *c* |
| *31.* | *b* | *32.* | *a* | *33.* | *d* | *34.* | *d* | *35.* | *a* | *36.* | *a* |
| *37.* | *c* | *38.* | *a* | *39.* | *d* | *40.* | *a* | *41.* | *c* | *42.* | *d* |
| *43.* | *a* | *44.* | *b* | *45.* | *b* | *46.* | *a* | *47.* | *c* | *48.* | *c* |
| *49.* | *d* | *50.* | *c* | *51.* | *b* | *52.* | *b* | *53.* | *a* | *54.* | *a* |
| *55.* | *b* | *56.* | *c* | *57.* | *d* | *58.* | *a* | *59.* | *a* | *60.* | *b* |
| *61.* | *a* | *62.* | *d* | *63.* | *a* | *64.* | *b* | *65.* | *d* | *66.* | *a* |
| *67.* | *b* | *68.* | *c* | *69.* | *a* | *70.* | *b* | *71.* | *a* | *72.* | *a* |
| *73.* | *c* | *74.* | *d* | *75.* | *d* | *76.* | *c* | *77.* | *d* | *78.* | *b* |
| *79.* | *c* | *80.* | *c* | *81.* | *b* | *82.* | *a* | *83.* | *b* | *84.* | *c* |
| *85.* | *d* | *86.* | *d* | *87.* | *c* | *88.* | *a* | *89.* | *b* | *90.* | *b* |
| *91* | *b* | *92.* | *c* | *93.* | *c* | *94.* | *c* | *95.* | *b* | *96.* | *a* |
| *97.* | *c* | *98.* | *d* | *99.* | *a* | | | | | | |