QB365 Question Bank Software Study Materials

Two Dimensional Analytical Geometry 50 Important 1 Marks Questions With Answers (Book Back and Creative)

11th Standard

Maths

Total Marks : 50

Multiple Choice Question

50 x 1 = 50

1) The equation of the locus of the point whose distance from y-axis is half the distance from origin is

(a) $x^2 + 3y^2 = 0$ (b) $x^2 - 3y^2 = 0$ (c) $3x^2 + y^2 = 0$ **(d) $3x^2 - y^2 = 0$**

2) Which of the following equation is the locus of $(at^2, 2at)$

(a) $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ (b) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ (c) $x^2 + y^2 = a^2$ **(d) $y^2 = 4ax$**

3) Which of the following point lie on the locus of $3x^2 + 3y^2 - 8x - 12y + 17 = 0$

(a) (0, 0) (b) (-2, 3) **(c) (1, 2)** (d) (0, -1)

4) If the point (8, -5) lies on the locus $\frac{x^2}{16} - \frac{y^2}{25} = k$, then the value of k is

(a) 0 (b) 1 (c) 2 **(d) 3**

5) Straight line joining the points (2, 3) and (-1, 4) passes through the point (α, β) if

(a) $\alpha + 2\beta = 7$ (b) $3\alpha + \beta = 9$ **(c) $\alpha + 3\beta = 11$** (d) $3\alpha + \beta = 11$

6) The slope of the line which makes an angle 45° with the line 3x- y = -5 are:

(a) 1, -1 **(b) $\frac{1}{2}, -2$** (c) $1, \frac{1}{2}$ (d) $2, -\frac{1}{2}$

7) Equation of the straight line that forms an isosceles triangle with coordinate axes in the I-quadrant with perimeter $4 + 2\sqrt{2}$ is

(a) x + y + 2 = 0 **(b) x + y - 2 = 0** (c) $x + y - \sqrt{2} = 0$ (d) $x + y + \sqrt{2} = 0$

8) The coordinates of the four vertices of a quadrilateral are (-2, 4), (-1, 2), (1, 2) and (2, 4) taken in order. The equation of the line passing through the vertex (-1, 2) and dividing the quadrilateral in the equal areas is

(a) x + 1 = 0 (b) x + y = 1 (c) x + y + 3 = 0 **(d) x - y + 3 = 0**

9) The intercepts of the perpendicular bisector of the line segment joining (1, 2) and (3, 4) with coordinate axes are

(a) 5, -5 **(b) 5, 5** (c) 5, 3 (d) 5, -4

10) The equation of the line with slope 2 and the length of the perpendicular from the origin equal to $\sqrt{5}$ is

(a) $x - 2y = \sqrt{5}$ (b) $2x - y = \sqrt{5}$ **(c) 2x - y = 5** (d) x - 2y - 5 = 0

11) A line perpendicular to the line 5x - y = 0 forms a triangle with the coordinate axes. If the area of the triangle is 5 sq. units, then its equation is

(a) $x + 5y \pm 5\sqrt{2} = 0$ (b) $x - 5y \pm 5\sqrt{2} = 0$ (c) $5x + y \pm 5\sqrt{2} = 0$ (d) $5x - y \pm 5\sqrt{2} = 0$

12) Equation of the straight line perpendicular to the line x - y + 5 = 0, through the point of intersection the y-axis and the given line

(a) x - y - 5 = 0 **(b) x + y - 5 = 0** (c) x + y + 5 = 0 (d) x + y + 10 = 0

13) If the equation of the base opposite to the vertex (2, 3) of an equilateral triangle is x + y = 2, then the length of a side is

(a) $\sqrt{\frac{3}{2}}$ (b) 6 **(c) $\sqrt{6}$** (d) $3\sqrt{2}$

The line (p + 2q)x + (p - 3q)y = p - q for different values of p and q passes through the point

14) (a) $\left(\frac{3}{5}, \frac{5}{2}\right)$ (b) $\left(\frac{2}{5}, \frac{2}{5}\right)$ (c) $\left(\frac{3}{5}, \frac{3}{5}\right)$ **(d)** $\left(\frac{2}{5}, \frac{3}{5}\right)$

15) The point on the line 2x- 3y = 5 is equidistance from (1, 2) and (3, 4) is

(a) (7, 3) **(b) (4, 1)** (c) (1, -1) (d) (-2, 3)

16) The image of the point (2, 3) in the line y = -x is

(a) (-3, -2) (b) (-3, 2) (c) (-2, -3) (d) (3, 2)

17) The length of $\perp$ from the origin to the line $\frac{x}{3} - \frac{y}{4} = 1,$ is

(a) $\frac{11}{5}$ (b) $\frac{5}{12}$ **(c)** $\frac{12}{5}$ (d) $\frac{-5}{12}$

18) The y-intercept of the straight line passing through (1, 3) and perpendicular to 2x - 3y + 1 = 0 is

(a) $\frac{3}{2}$ **(b)** $\frac{9}{2}$ (c) $\frac{2}{3}$ (d) $\frac{2}{9}$

19) If the two straight lines x + (2k -7)y + 3 = 0 and 3kx + 9y - 5 = 0 are perpendicular then the value of k is

(a) k = 3 (b) $k = \frac{1}{3}$ (c) $k = \frac{2}{3}$ (d) $k = \frac{3}{2}$

20) If a vertex of a square is at the origin and its one side lies along the line 4x + 3y - 20 = 0, then the area of the square is

(a) 20 sq. units **(b) 16 sq. units** (c) 25 sq. units (d) 4 sq.units

21) If the lines represented by the equations $6x^2 + 41xy - 7y^2 = 0$ make angles α and β with x-axis, then $tan\ \alpha \tan\ \beta =$

(a) $-\frac{6}{7}$ (b) $\frac{6}{7}$ (c) $-\frac{7}{6}$ (d) $\frac{7}{6}$

22) The area of the triangle formed by the lines $x^2 - 4y^2 = 0$ and x = a is

(a) $2a^2$ (b) $\frac{\sqrt{3}}{2}a^2$ **(c)** $\frac{1}{2}a^2$ (d) $\frac{2}{\sqrt{3}}a^2$

23) If one of the lines given by $6x^2 - xy + 4cy^2 = 0$ is 3x + 4y = 0, then c equals to

(a) -3 (b) -1 (c) 3 (d) 1

24) θ is acute angle between the lines $x^2 - xy - 6y^2 = 0$, then $\frac{2\cos\theta + 3\sin\theta}{4\sin\theta + 5\cos\theta}$ is

(a) 1 (b) $-\frac{1}{9}$ **(c)** $\frac{5}{9}$ (d) $\frac{1}{9}$

25) One of the equation of the lines given by $x^2 + 2xy\ cot\theta - y^2 = 0$ is

(a) $x - y\cot\theta = 0$ (b) $x + y\tan\theta = 0$ (c) $x\cos\theta + y(\sin\theta + 1) = 0$ **(d)** $x\sin\theta + y(\cos\theta + 1) = 0$

26) The locus of a point which moves such that it maintains equal distances from two fixed points is a ____________

(a) straight line **(b) line bisector** (c) pair of straight lines (d) angle bisector

27) If the points (a, 0) (0, b) and (x, y) are collinear, then ____________

(a) $\frac{x}{a} - \frac{y}{b} = 1$ **(b)** $\frac{x}{a} + \frac{y}{b} = 1$ (c) $\frac{x}{a} + \frac{y}{b} = -1$ (d) $\frac{x}{a} + \frac{y}{b} = 0$

28) The value of $\lambda$for which the lines 3x + 4y = 5, 5x + 4y = 4 and λx + 4y = 6 meet at a point is ____________

(a) 2 **(b) 1** (c) 4 (d) 3

29) The distance between the line 12x - 5y + 9 = 0 and the point (2, 1) is ____________

(a) $\pm\frac{28}{13}$ **(b)** $\frac{28}{13}$ (c) $-\frac{28}{13}$ (d) none of these

30) The lines x + 2y - 3 = 0 and 3x - y + 7 = 0 are ____________

(a) parallel **(b) neither parallel nor perpendicular** (c) perpendicular (d) parallel as wellas perpendicular

31) If the straight line y = mx + c passes through the point (1, 2) and (-2, 4) then the value of m and c are ____________

(a) $\frac{8}{3}, \frac{-2}{3}$ **(b)** $\frac{-2}{3}, \frac{8}{3}$ (c) $\frac{2}{3}, \frac{-8}{3}$ (d) $\frac{-2}{3}, \frac{-8}{3}$

32) The equation of the bisectors of the angle between the co-ordinate axes are _____________

(a) x+y=0 (b) x-y=0 **(c) $x \pm y=0$** (d) x=0

33) The equation of the straight line bisecting the line segment joining the points (2, 4) and (4, 2) and making an angle of 45^o with positive direction of x-axis is _____________

(a) x + y = 6 **(b) x - y = 0** (c) x - y = 6 (d) x + y = 0

34) The length of perpendicular from the origin to a line is 12 and the line makes an angle of 120° with the positive direction of y-axis. then the equation of line is _____________

(a) $x+y\sqrt{3}=24$ (b) $x+y=12\sqrt{2}$ (c) x + y = 24 (d) $x+y=12\sqrt{3}$

35) The lines ax + y + 1 = 0, x + by + 1 = 0 and x + y + c = 0(a ≠ b ≠ c ≠ 1) are concurrent, then the value of $\frac{1}{1-a}+\frac{1}{1-b}+\frac{1}{1-c}=$ _____________

(a) -1 (b) 1 (c) 0 (d) abc

36) Which one of the following statements is false?

(a) The image of a point $(\alpha\beta)$ about x-axis $(\alpha,-\beta)$ (b) The image of the line ax+by+c=0 about x-axis is ax-by+c=0

(c) The image of a point (α,β) about y-axis $(-\alpha,\beta)$ **(d) The image of the line ax+by+c=0 about y-axis is ax-by+c=0**

37) The image of the point (1, 2) with respect to the line y = x is _____________

(a) (-1, -2) (b) (2, 1) (c) (2, -1) **(d) (2, 1)**

38) The condition that the slope of one of the lines represented by $ax^2 + 2hxy + by^2 = 0$ is n times the slope of the other is _____________

(a) $4nh^2 = ab(1 + n)^2$ (b) $8h^2 = 9ab$ (c) $4n = ab(1 + n)^2$ (d) $4nh^2 = ab$

39) The equation $3x^2 + 2hxy + 3y^2 = 0$ represents a pair of straight lines passing through the origin. The two lines are _____________

(a) real and distinct if $h^2 > 3$ **(b) real and distinct if $h^2 > 0$** (c) real and distinct $h^2 > 6$

(d) real and distinct if $h^2 - 9 = 0$

40) If co-ordinate axes are the angle bisectors of the pair of lines $ax^2 + 2hxy + by^2 = 0$ then _____________

(a) a = b **(b) h = 0** (c) a + b = 0 (d) $a^2 + b^2 = 0$

41) The value λ for which the equation $12x^2 - 10xy + 2y^2 + 11x - 5y + \lambda = 0$ represent a pair of straight lines is _____________

(a) $\lambda = 1$ **(b) $\lambda = 2$** (c) $\lambda = 3$ (d) $\lambda = 0$

42) The equation $x^2 + kxy + y^2 - 5x - 7y + 6 = 0$ represents a pair of straight lines then k = _____________

(a) $\frac{5}{3}$ **(b) $\frac{10}{3}$** (c) $\frac{3}{2}$ (d) $\frac{3}{10}$

43) Separate equation of lines for a pair of lines whose equation is $x^2 + xy - 12y^2 = 0$ are _____________

(a) x + 4y = 0 and x + 3y = 0 (b) 2x - 3y = 0 and x - 4y = 0 (c) x - 6y = 0 and x - 3y = 0 **(d) x + 4y = 0 and x - 3y = 0**

44) The distance between the parallel lines 3x - 4y + 9 = 0 and 6x - 8y -15 = 0 is _____________

(a) $\frac{-33}{10}$ (b) $\frac{10}{33}$ **(c) $\frac{33}{10}$** (d) $\frac{33}{20}$

45) The co-ordinates of a point on x + y + 3 = 0 whose distance from x + 2y + 2 = 0 is $\sqrt{5}$, is _____________

(a) (9, 6) **(b) (-9, 6)** (c) (6, -9) (d) (-9, -6)

46) If the co-ordinates of a variable point p be $(t+\frac{1}{t}, t-\frac{1}{t})$ where t is the parameter then the locus of p _____________

(a) xy = 1 (b) $x^2 + y^2 = 4$ **(c) $x^2 - y^2 = 4$** (d) $x^2 - y^2 = 8$

47) Find the odd one out of the following:

(a) (0,5), (0, 7)(-7, 0) (b) (5,0), (-9, 0)(11, 0) (c) (1,1), (-5,-5), (-11,-11) **(d) (0, -2), (-7,0), (4, 4)**

48) A line passes through the point (2, 2) and is perpendicular to the line 3x + y = 3 its y intercept is ____________

(a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) 1 **(d)** $\frac{4}{3}$

49) If P_1 and P_2 are lengths of the perpendiculars from the origin upon the lines $x \sec\theta + y \operatorname{cosec}\theta = a$ and $x \cos\theta - y \sin\theta = a \cos 2\theta$ respectively then __________

(a) $4\mathrm{P}_1^2 + \mathrm{P}_2{}^2 = a^2$ (b) $\mathbf{P}_1^2 + 4\mathrm{P}_2^2 = a^2$ (c) $\mathrm{P}_1^2 + \mathrm{P}_2{}^2 = a^2$ (d) None of these

50) The angle between two lines 2x - y + 3 = 0 and x + 2y + 3 = 0 is, __________

(a) 90 (b) 60 (c) 45 (d) 30