

COORDINATE SYSTEM AND STRAIGHT LINE

EXERCISE :

- The coordinate of the middle points of the side of a triangle are (4,2), (3,3) and (2,2) then find the coordinate of its Centroid are
 - $(3, \frac{7}{3})$
 - (3,3)
 - (4,3)
 - None of these
- Mid-points of the sides AB and AC of a ΔABC are (3,5) and (-3,-3) respectively, then find the length of the sides BC is
 - 10
 - 20
 - 15
 - 30
- The locus of a point, whose difference of distance from point (3,0) and (-3,0) is 4, is
 - $\frac{x^2}{4} - \frac{y^2}{5} = 1$
 - $\frac{x^2}{5} - \frac{y^2}{4} = 1$
 - $\frac{x^2}{2} - \frac{y^2}{3} = 1$
 - None of these
- If P(1,2), Q(4,6), R(5,7) and S(a,b) are the vertices of a parallelogram PQRS, then
 - a=2, b=4
 - a=3, b=4
 - a=2, b=3
 - a=3, b=5
- The equation of line parallel to the line $2x+3y+8=0$ and passing through (1,1) is
 - $2x+3y=0$
 - $2x+3y+2=0$
 - $2x+3y+8=0$
 - $2x+3y-5=0$

6. The equation of line perpendicular to the line $2x+3y+5 = 0$ and passing through origin is
- (a) $2x+3y = 0$ (b) $3x+2y = 0$
(c) $3x-2y = 0$ (d) $2x-3y = 0$
7. The distance between the lines $4x+3y = 11$ and $8x + 6y = 15$ is
- (a) $\frac{7}{2}$ (b) $\frac{7}{3}$
(c) $\frac{7}{5}$ (d) $\frac{7}{10}$
8. The equation of the straight line which is perpendicular to $x = y$ and passes through $(3,2)$ will be given by?
- (a) $X-y = 5$ (b) $x+y = 5$
(c) $X+ y = 1$ (d) $x-y = 1$
9. If the points $(k,2-k),(-k+1,2k),(-4-k,6-2k)$ are collinear, then k is equal to
- (a) $2,3$ (b) $1,0$
(c) $\frac{1}{2}, -1$ (d) $1,2$
10. The line $x+ y = 4$ divides the line joining the points $(-1,1)$ and $(5,7)$ in the ratio
- (a) $2:3$ (b) $1:2$
(c) $1:1$ (d) $4:3$
11. Foot of perpendicular drawn from $(0,5)$ to the line $3x-4y-5 = 0$ is
- (a) $(1,3)$ (b) $(2,3)$
(c) $(3,2)$ (d) $(3,1)$



12. The foot of the perpendicular drawn from the point $(2, -1)$ to a straight line L is $(1, 3)$. The equation of straight line L is
- (a) $x - 4y + 11 = 0$ (b) $x + 4y + 13 = 0$
(c) $4x - y - 1 = 0$ (d) $4x + y - 7 = 0$
13. Find the value of k , if the straight line $2x + 3y + 4 + k(6x - y + 12) = 0$ is perpendicular to the line $7x + 5y - 4 = 0$
- (a) $\frac{29}{37}$ (b) $-\frac{29}{37}$
(c) $\frac{37}{29}$ (d) $-\frac{37}{29}$
14. The diagonals of a parallelogram $ABCD$ are along the line $x + 3y = 4$ and $6x - 2y = 7$. Then, $ABCD$ must be a
- (a) rectangle (b) square
(c) Cyclic quadrilateral (d) rhombus
15. The equation of straight line passing through the point of intersection of the straight line $3x - y + 2 = 0$ and $5x - 2y + 7 = 0$ and having infinite slope is
- (a) $X = 2$ (b) $x + y = 3$
(c) $X = 3$ (d) $x = 4$
16. Equation of the angle bisectors of the pairs of lines P is
- (a) $xy - y = 0$ (b) $xy - x = 0$
(c) $xy = 0$ (d) $xy + y = 0$
17. Area of the triangle formed by the angle bisectors of the pairs of lines P and the line L (in sq units) is ?
- (a) 1 (b) 2
(c) 3 (d) 4



18. For what value of k are the two straight lines
 $3x + 4y = 1$ and $4x + 3y + 2k = 0$ equidistant for the point $(1,1)$?

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

19. A point P moves such that its distance from $(1,2)$ and $(-2,3)$ are equal. Then, the locus of P is

- (a) Straight line (b) parabola
(c) Ellipse (d) hyperbola

20. The value of k for which the lines $2x + 3y + a = 0$ and $5x + ky + a = 0$ represent a family of parallel lines is

- (a) 3 (b) 4.5
(c) 7.5 (d) 15

21. What is the equation of the line which passes through $(4,-5)$ and is perpendicular to $3x + 4y + 5 = 0$

- (a) $4x + 3y - 31 = 0$ (b) $3x - 4y - 41 = 0$
(c) $4x + 3y - 1 = 0$ (d) $3x + 4y + 8 = 0$

22. If the three vertices of the parallelogram $ABCD$ are $A(1,a), B(3,a), C(2,b)$, then D is equal to?

- (a) $(3,b)$ (b) $(0,b)$
(c) $(4,b)$ (d) $(5,b)$

23. What angle does the line segment joining $(5,2)$ and $(6,-15)$ subtend at $(0,0)$?

- (a) $\frac{\pi}{6}$ (b) $\frac{\pi}{4}$
(c) $\frac{\pi}{3}$ (d) $\frac{3\pi}{4}$



24. The equation of the locus of a point which is equidistant from the axes is

(a) $y = 2x$

(b) $x = 2y$

(c) $y = \pm x$

(d) $2y + x = 0$

25. The equation of the line, the reciprocals of whose intercepts on the axes are m and n , is given by

(a) $nx + my = mn$

(b) $mx + ny = 1$

(c) $mx + ny = mn$

(d) $mx - ny = 0$

26. What is the equation of the straight line passing through $(5, -2)$ and $(-4, 7)$?

(a) $5x - 2y = 4$

(b) $-4x + 7y = 9$

(c) $x + y = 3$

(d) $x - y = -1$

27. What is the angle between two lines $x + y = 1$ and $x - y = 1$ is

(a) $\frac{\pi}{6}$

(b) $\frac{\pi}{4}$

(c) $\frac{\pi}{3}$

(d) $\frac{\pi}{2}$

28. What is the distance between the planes $x - 2y + z - 1 = 0$ and $-3x + 6y - 3z + 2 = 0$?

(a) 3 units

(b) 1 unit

(c) 0

(d) none of these

29. What is the distance cosine of Z-axis is

(a) 0

(b) $\frac{1}{3}$

(c) 1

(d) 3



30. The locus of a point equidistant from three collinear points is
(a) a straight line (b) a pair of points
(c) A point (d) the null set
31. The equation of the locus of a point which is always equidistant from the point (1,0) and (0,-2) is
(a) $2x + 4y + 3 = 0$ (b) $4x + 2y + 3 = 0$
(c) $2x + 4y - 3 = 0$ (d) $4x + 2y - 3 = 0$
32. The points (5,1), (1,-1) and (11,4) are
(a) Collinear
(b) Vertices of right angled triangle
(c) Vertices of equilateral triangle
(d) Vertices of an isosceles triangle
33. What is the locus of the point which passes through (2,-3) and is parallel to the Y-axis
(a) $y = -3$ (b) $y = 2$
(c) $x = 2$ (d) $x = -3$
34. What is the foot of the perpendicular from the point (2,3) on the line $x + y - 11 = 0$?
(a) (1,10) (b) (5,6)
(c) (6,5) (d) (7,4)
35. The area of a triangle is 5 and two of its vertices are A(2,1), B(3,-2). Then, the third vertex which lies on the line $y = x + 3$
(a) $(\frac{7}{2}, \frac{13}{2})$ (b) $(\frac{5}{2}, \frac{5}{2})$
(c) $(\frac{3}{2}, \frac{3}{2})$ (d) (0,0)



36. What is the distance of the line $2x + y = 2z = 3$ from the origin?
(a) 1 unit (b) 1.5 units
(c) 2 units (d) 2.5 units
37. What is the equation of straight line which passes through (3,4) and the sum of whose x and y Intercepts is 14?
(a) $4x + 3y = 24$ (b) $x + y = 7$
(c) $4x - 3y = 0$ (d) $3x + 4y = 25$
38. Two straight line path are represented by the equation $2x - y = 2$ and $-4x + 2y = 6$. Then, the paths will
(a) Cross each other at one point
(b) not cross to each other
(c) Cross each other at two points
(d) Cross each other at infinity many points
39. What is the angle between the planes $2x - y - 2z = 0$ and $3x - 4y + 5z - 3 = 0$?
(a) $\frac{\pi}{6}$ (b) $\frac{\pi}{4}$
(c) $\frac{\pi}{3}$ (d) $\frac{\pi}{2}$
40. What is the inclination of the line $\sqrt{3}x - y - 1 = 0$?
(a) 30° (b) 60°
(c) 135° (d) 150°
41. If p, q, r and s be the distance from origin of the points (2,6), (3,4), (4,5) and (-2,5), respectively. Which one of the following is correct?
(a) p (b) q
(c) r (d) s



42. The line $y = 0$ divides the line joining the points $(3, -5)$ and $(-4, 7)$ in the ratio
- (a) 3:4 (b) 4:5
(c) 5:7 (d) 7:9
43. The sum of the focal distance of a point on the ellipse $\frac{x^2}{4} + \frac{y^2}{9} = 1$ is
- (a) 4 units (b) 6 units (c) 8 units (d) 10 units
44. The equation of a straight line which makes an angle 45° with the X-axis with Y-intercept 101 units is
- (a) $10x + 10y = 1$ (b) $101x + y = 1$
(c) $X + y - 101 = 0$ (d) $x - y + 101 = 0$
45. What is the equation to the plane through $(1, 2, 3)$ parallel to $3x + 4y - 5z = 0$?
- (a) $3x + 4y + 5z + 4 = 0$
(b) $3x + 4y - 5z + 14 = 0$
(c) $3x + 4y - 5z + 4 = 0$
(d) $3x + 4y - 5z - 4 = 0$
46. What is the equation of line passing through $(0, 1)$ and making an angle with the Y-axis equal to the inclination of the line $x - y = 4$ with X-axis?
- (a) $y = x + 1$ (b) $x = y + 1$
(c) $2x = y + 2$ (d) None of these
47. What is the perpendicular distance of the point (x, y) from X-axis?
- (a) x (b) y
(c) $|x|$ (d) $|y|$
48. For what value of K , are the lines $x + 2y - 9 = 0$ and $kx + y + 4y + 5 = 0$
- (a) 2 (b) -1
(c) 1 (d) 0



49. What is the cosine of angle between the planes $X + y + z + 1 = 0$ and $2x - 2y + 2z + 1 = 0$?
- (a) $1/2$ (b) $1/3$
(c) $2/3$ (d) $1/4$
50. What are the coordinate of the foot of the perpendicular from the point $(2,3)$ on the line $x + y - 11 = 0$?
- (a) $(2,9)$ (b) $(5,6)$
(c) $(-5,6)$ (d) $(6,5)$
51. If (p, q) is the point on the X-axis equidistant from the point $(1,2)$ and $(2,3)$, then which one of the following is correct?
- (a) $p = 0, q = 4$ (b) $p = 4, q = 0$
(c) $p = 3/2, q = 0$ (d) $p = 1, q = 0$
52. What is the locus of a point which moves equidistant from the coordinate axes?
- (a) $X \pm y = 0$ (b) $x + 2y = 0$
(c) $2x + y = 0$ (d) None of these
53. What is the locus of the point which is at a distance 8 units to the left of Y-axis?
- (a) $X = 8$ (b) $y = 8$
(c) $X = -8$ (d) $y = -8$
54. If the straight lines $x - 2y = 0$ and $kx + y = 1$ intersect at the point $(1, 1/2)$, then what is the value of 'K'?
- (a) 1 (b) 2
(c) $1/2$ (d) $-1/2$

55. If the lines $3y + 4 = 1$, $y = x + 5$ and $5y + by = 3$ are concurrent, then what is the value of b ?

- (a) 1 (b) 3
(c) 6 (d) 0

56. If $(-5, 4)$ divides the line segment between the coordinate axes in the ratio $1:2$, then what is its equation?

- (a) $8x + 5y + 20 = 0$ (c) $8x - 5y + 60 = 0$
(b) $5x + 8y - 7 = 0$ (d) $5x - 8y + 57 = 0$

57. What is the slope of the line perpendicular to the line $\frac{x}{4} - \frac{y}{3} = 1$?

- (a) $\frac{3}{4}$ (b) $-\frac{3}{4}$
(c) $-\frac{4}{3}$ (d) $\frac{4}{3}$