Co-ordinate Geometry

Model 1

1. If the distance between two points (0, -5) and (x, 0) is 13 units, then x =

    a) 10   b) ±10   c) 12   d) ±12

2. What is the distance between the points (0, 0) and the intersecting point of the graph of x = 3 and y = 4?

    a) 10   b) ±10   c) 5   d) ±5

3. What is the distance from (–7, 2) to (5, –3)

    a) 13   b) 11   c) 10   d) 12

4. In the xy-coordinate system, the distance between $(2\sqrt{3}, -\sqrt{2})$ and $(5\sqrt{3}, 3\sqrt{2})$ and is approximately

    a) 5.1   b) 7.7   c) 4.3   d) 3.8

5. Consider the three points in the x-y plane: P = (2, 4), Q = (7, 7), and R = (6, 0). Rank these three points from closest to the origin, (0, 0), to furthest from the origin

    a) P, R, Q   b) R, P, Q   c) R, Q, P   d) P, Q, R

6. Find the length of the line segment whose endpoints are (-3, 4) and (5, 4).

    a) 7   b) $\sqrt{8}$ c) $\sqrt{7}$ d) 8

7. Two birds are flying toward a birdhouse that is halfway between them. The birds are at coordinates A (-4, 4) and B (10,-2).What are the coordinates of the birdhouse?

    a) (1, 2)   b) (2, 3)   c) (3, 1)   d) (3, 2)

8. Find the distance between the points (-4,-5) and (1,-2).

    a) $\sqrt{18}$ b) $\sqrt{34}$ c) $\sqrt{58}$ d) $\sqrt{64}$

Model 2

9. Find the point that divides the line segment joining the points (4, 5) and (-4, 1) in the ratio 1:3

   (i) internally

   (ii) externally

   a) (1, 2) (4, 3)   b) (2, 3) (5, 8) c) (2, 4) (8, 7) d) (3, 2) (6, 7)

10. Find the co-ordinates of the point which divides the join of the points (2, 3) and (5, -3) in the ratio 1 : 2

    (i) internally

    (ii) externally

    a) (3, 1) (-1, 9)   b) (4, 3) (7, 8) c) (1, 4) (2, 7) d) (3, 2) (6, 9)

11. Find the co-ordinates of the point that divides the segment [PQ] in the given ratio:

    (i) P (5, -2), Q (9, 6) and ratio 3: 1 internally.

    (ii) P (-7, 2), Q (-1, -1) and ratio 4 : 1 externally

    a) (3, 4) (-1, 7)   b) (4, 8) (1,-2) c) (1, 5) (2, 7) d) (3, 4) (7, 9)

12. In what ratio does the point P (2, -5) divide the line segment joining the points A (- 3, 5) and B (4, -9)?

    a) 5:2 internally   b) 3:2 externally

    c) 1:2 internally   d) 5:2 externally

13. If P (1, 1) and Q (2, -3) are two points and R is a point on PQ produced such that PR = 3 PQ, find the co-ordinates of R **[April 23, 2016 @ 1h 24m 30s]**

    a) (5, 9)   b) (4, -11)   c) (6, 11)   d) (13, 2)

Model 3

14. Find the equation of a straight line passing through the point (2, 7) and having a slope of 1 unit

  a) $x - y + 5 = 0$ b) $x + y - 5 = 0$

  c) $x + y + 5 = 0$ d) $x - y - 5 = 0$

15. Find the equation of a straight line passing through the points (5, 3) and (-2, 6)

  a) $3x - 7y + 36 = 0$ b) $3x + 7y - 36 = 0$

  c) $3x + 7y + 36 = 0$ d) $3x - 7y - 36 = 0$

16. The equation of a line passing through (0, 0) and parallel to the straight line 3x – 4y - 7 = 0, is –

  a) 4y – 3x = 0   b) 3x + y = 0

  c) 3x – y = 2   d) 3y – 2x = 1

17. Equation of the straight line parallel to x-axis and also 3 units below x-axis is

  a) x = -3   b) y = 3   c) y = -3   d) x = 3

18. Equation passing through (-2, 8) and (5, 7)

  a) cuts only x-axis   b) cuts only y-axis

  c) cuts both the axis   d) does not cut any axis

19. What are the intercepts cut from x-axis and y-axis by the straight line $\frac{x}{3} + \frac{y}{3} = 1$?

  a) 2, 4   b) 3, -4   c) 2, -6   d) 3, 4

20. The straight line 4x + 3y = 12 passes through –

  a) 1st, 2nd and 3rd quadrant   b) 1st, 2nd and 4th quadrant

  c) 2nd, 3rd and 4th quadrant   d) 1st, 3rd and 4th quadrant

21. Determine the equation of the straight line passing through the point (-1, -2) and having slope 4/7.

    a) 4x − 7y = 10

    b) 3x + 7y = 10

    c) 7x − 3y = 2

    d) 8y + 9x = 8

22. Find the equation of the straight line passing through the point (2, 2) and having intercepts whose sum is 9.

    a) $\frac{x}{3} + \frac{y}{6} = 1$

    b) $\frac{x}{5} + \frac{y}{6} = 2$

    c) $\frac{x}{2} + \frac{y}{5} = 1$

    d) $\frac{x}{5} + \frac{y}{7} = 1$

23. What is the equation of the line which is parallel to the line 4x + 5y = 18 and passing through the point (4, -5)

    a) $4x - 5y + 5 = 0$

    b) $4x + 5y + 9 = 0$

    c) $4x + 5y - 9 = 0$

    d) $4x - 5y - 5 = 0$

24. What is the equation of the line which is perpendicular to the line 7x+5y=19 and passing through the point (4, -2)

    a) $4x - 5y + 5 = 0$

    b) $4x + 5y = 39$

    c) $4x + 5y = 49$

    d) $5x - 7y = 34$

25. The equation of a line, which passes through the point (3, 4) and is perpendicular to 7y + 3x + 10 = 0, is −

    a) 7x − 3y = 9

    b) y − 7x = 0

    c) 7x − y = 2

    d) 7x + 3y = 7

26. Find the length of the perpendicular from (3, 2) to the straight line 3x + 2y + 1 = 0.

    a) $\frac{7}{\sqrt{13}}$

    b) $\frac{14}{\sqrt{13}}$

    c) $\frac{15}{\sqrt{13}}$

    d) $\frac{17}{\sqrt{13}}$

27. Find the equation of the straight line passing through the point (2, 1) and perpendicular to the straight line x + y = 9

    a) $x - y + 1 = 0$　　　　　　　　b) $x + y - 1 = 0$

    c) $x + y + 1 = 0$　　　　　　　　d) $x - y - 1 = 0$

Model 4

28. Find the area of the triangle formed by the points obtained by the equations x = 4, y = 3 and 3x + 4y = 12 (in sq.units)

    a) 10　　　　　b) 12　　　　　c) 6　　　　　d) 8

29. The area of the triangle formed by lines 5x + 7y = 35, 4x + 3y = 12 and x-axis is

    a) 160/13 sq. units　　　　　　　b) 150/13 sq. units

    c) 140/13 sq. units　　　　　　　d) 10 sq. units

30. A triangle is formed by x-axis and the lines 2x + y = 4 and x − y + 1 = 0 as the three sides. Taking the side along x-axis at its base find the corresponding altitude of the triangle

    a) 2　　　　　b) 1　　　　　c) -2　　　　　d) -1

31. A triangle is formed by the intersection of the lines 2x + 3y = 14, 4x - 5y = - 16 and the x- axis. Find the area of the triangle (in sq.units)

    a) 20　　　　　b) 22　　　　　c) 25　　　　　d) 30

32. Find the area of the triangle formed by the points A (2, 4) B (4, 1) and C (-2, 1) (in sq.units)

    a) 8　　　　　b) 12　　　　　c) 9　　　　　d) 10

33. Find the area of the triangle formed by the points A (15, 15) B (16, 29) and C (50, 25) (in sq.units)

    a) 280　　　　　b) 233　　　　　c) 245　　　　　d) 240

34. Find the area of a square whose consecutive vertices are (11, 12) and (5, 4)

    a) 13   b) 10   c) 100   d) 125

35. Find the area of a quadrilateral which is thrice of an area of a triangle formed by the points

    x = 4, y = 3 and 3x + 4y = 12

    a) 6   b) 18   c) 12   d) 36

Answers:

1 – d	2 - c	3 - a	4 - b	5 - a	6 - d	7 - c	8 - b	9 - c	10 - a
11 - b	12 - a	13 - b	14 - a	15 - b	16 - a	17 - c	18 - c	19 - d	20 - b
21 - a	22 - a	23 - b	24 - d	25 - a	26 - b	27 - d	28 - c	29 - a	30 - a
31 - b	32 – c	33 - d	34 - c	35 - b					

Additional Examples

1. In xy plane, P and Q are two points having co-ordinates (2, 0) and (5, 4) respectively. Then the numerical value of the perimeter of the semicircle with radius 3/5ᵗʰ of PQ is

    a) 3π b) 9π c) $3\pi+6$ d) $25\pi+9$

2. What is the area of a rectangle which is 150% more than the area (in sq. unit) of the triangle formed by the three graphs of the equations x = 4, y = 3 and 3x + 4y = 12, is

    a) 6   b) 10   c) 15   d) 8

3. The graph of 3x + 4y – 24 = 0 forms an ΔOAB with the coordinate axes, where O is the origin. Also the graph of x + y + 4 = 0 forms an Δ OCD with the coordinate axes. Then the area of ΔOCD is equal to

    a) The area of ΔOAB   b) $\frac{1}{2}$ of area of ΔOAB

    c) $\frac{1}{3}$ of area of ΔOAB   d) $\frac{2}{3}$ of area of ΔOAB

4. A (3, 4) and B (4, -3), G = (1, 0) centroid, then find out the vertex C and area of Δ ABC?

   a) (-4, 1), 18   b) (-4, -1), 27

   c) (-3, -4), 27   d) (-4, -1), 54

5. The distance between the parallel lines $3x + 4y + 5 = 0$ and $3x + 4y + 6 = 0$ is

   a) 11/5   b) 5/11   c) 11/3   d) 1/5

Answers:

1 – c	2 - c	3 - c	4 - b	5 - d