BHARAT SCHOOL OF BANKING
COORDINATE GEOMETRY

1. What is the distance of point of intersection of straight lines 2x+3y=6 and y=x+7 from origin ?

a) 7
b) 3
c) 4
d) 5

Solution:

Solving $2x + 3y = 6$
And $y = x + 7$ we get $(x, y) = (-3, 4)$
$\therefore$distance from origin $= \sqrt{(-3)^2 + 4^2} = 5$

2. The length intercepted by the straight line 12x-9y=108 between the coordinate axes is

a) 12 unit
b) 18 unit
c) 15 unit
d) 9 unit

Solution:

$$\text{Required intercept} = \sqrt{\left(\frac{c}{a}\right)^2 + \left(\frac{c}{b}\right)^2} = \sqrt{\left(\frac{108}{12}\right)^2 + \left(\frac{108}{9}\right)^2}$$
$$= \sqrt{81 + 144} = \sqrt{225} = 15$$

3. Area of triangle formed by straight lines 4x-3y+4=0,4x+3y-20=0 and x- axis is

a) 3 sq. unit
b) 6 sq. unit
c) 12 sq. unit
d) 24 sq. unit

Solution:
Area =1/2*(difference between x-intercept)*(y-coordinate of point of intersection)
Required Area =1/2 |5-(-1) |×4=12 square unit

4. Area of triangle formed by straight lines 4x-y=4,3x+2y=14 and y-axis is

a) 11/2 sq. unit
b) 11/4 sq. unit
c) 22 sq. unit
d) 11 sq. unit

Solution:
Required Area =1/2 |-4-7|×2=11 square unit

5. Ratio of area of triangle formed by straight lines 2x+3y=4 and 3x-y+5=0 with x-axis and y-axis is

a) 1 : 2
b) 2 : 1
c) 4 : 1
d) None of these

Solution:

$$\text{Required ratio of Area} = \frac{\frac{1}{2}\left|\left(2-\left(\frac{-5}{3}\right)\right)2\right|}{\frac{1}{2}\left|\left(5-\frac{4}{3}\right)(-1)\right|} = \frac{\frac{22}{3}}{\frac{11}{3}} = \frac{22}{11} = \frac{2}{1}$$

6. Area of quadrilateral formed by straight lines 2x=-5,2y=3,x+1=0 and y+2=0 is

a) 21/2 sq. unit
b) 21/4 sq. unit
c) 21/8 sq. unit
d) 21/16 sq. unit

Solution:

$$\text{Given lines are } x = \frac{-5}{2}, y = \frac{3}{2}, x = -1 \text{ and } y = -2$$

$$\text{Required Area} = \frac{1}{2}(b-a)(c-d)$$

$$= \frac{1}{2}\left|\left(-1+\frac{5}{2}\right)\left(\frac{3}{2}+2\right)\right| = \frac{1}{2}\times\frac{3}{2}\times\frac{7}{2} = \frac{21}{8}\text{square unit}$$

7. Area enclosed by equation |x|+|y|=4 is

a) 16
b) 32
c) 24
d) 48

Solution:

$$\text{Area enclosed by } |x| + |y| = k$$

$$\text{Required Area} = 2k^2 = 2 \times 4^2 = 32 \text{ square unit.}$$

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8. For what value of k system of equations 3x+4y=19, y-x=3 and 2x+3y=k has a solution ?
   a) 11
   b) -11
   c) 14
   d) -14

Solution:
Solving 3x+4y=19 and y-x=3
We get x=1,y=4
Putting (x,y)=(1,4) in 2x+3y=k
We have 2×1+3×4=k ⇒k=14

9. Which of the following pair represent equation of parallel straight lines.
   a) 2x+3y=4,4x+6y=9
   b) x+2y=4,2x+y=4
   c) y=3x+5,x=3y+5
   d) None of these

Solution:
In option (a) a1/a2 =b1/b2 ≠c1/c2 .Hence lines given in alternative (a) shows parallel lines.

10. For what value of Ksystem of equation x+3y=K and 2x+6y=2K has infinitely many solution ?
   a) K=1
   b) K=2
   c) for all real values of K
   d) for no real value of K

Solution:
Here a1/a2 =b1/b2 =c1/c2 is always true. It has infinitely many solution for all real values of K.