# EXERCISE 3.1

**Choose the correct answer from the given four options:**

**1. Graphically, the pair of equations**

**$6x - 3y + 10 = 0$**

**$2x - y + 9 = 0$**

**represents two lines which are**

**(A) Intersecting at exactly one point.** **(B) Intersecting at exactly two points.**

**(C) Coincident** **(D) parallel.**

**Solution:**

**(D) Parallel**

Explanation:

The given equations ARE,

6x-3y+10 = 0

dividing by 3

⇒ 2x-y+ 10/3= 0… (i)

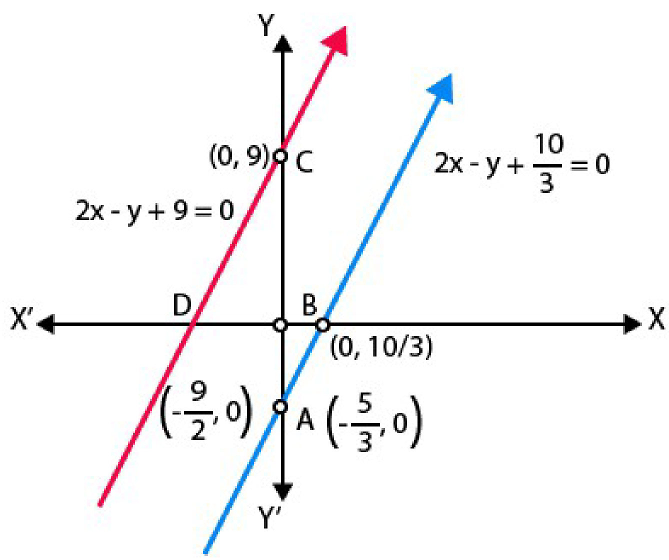
And 2x-y+9=0…(ii)

Table for 2x-y+ 10/3 = 0,

| | | |
|---|---|---|
| x | 0 | -5/3 |
| y | 10/3 | 0 |

Table for 2x-y+9=0

| | | |
|---|---|---|
| x | 0 | -9/2 |
| y | 9 | 0 |




Hence, the pair of equations represents two parallel lines.

**2. The pair of equations $x + 2y + 5 = 0$ and $-3x - 6y + 1 = 0$ have**

**(A) a unique solution** **(B) exactly two solutions**
**(C) infinitely many solutions** **(D) no solution**

**Solution:**

**(D) No solution**

Explanation:

The equations are:

$x + 2y + 5 = 0$

$-3x - 6y + 1 = 0$

$a_1 = 1; b_1 = 2; c_1 = 5$

$a_2 = -3; b_2 = -6; c_2 = 1$

$a_1/a_2 = -1/3$

$b_1/b_2 = -2/6 = -1/3$

$c_1/c_2 = 5/1 = 5$

Here,

$a_1/a_2 = b_1/b_2 \neq c_1/c_2$

Therefore, the pair of equation has no solution.

**3. If a pair of linear equations is consistent, then the lines will be**

**(A) parallel** **(B) always coincident**
**(C) intersecting or coincident** **(D) always intersecting**

**Solution:**

**(C) intersecting or coincident**

Explanation:

Condition for a pair of linear equations to be consistent are:

Intersecting lines having unique solution,

$a_1/a_2 \neq b_1/b_2$

Coincident or dependent

$a_1/a_2 = b_1/b_2 = c_1/c_2$

**4. The pair of equations *y* = 0 and *y* = –7 has**

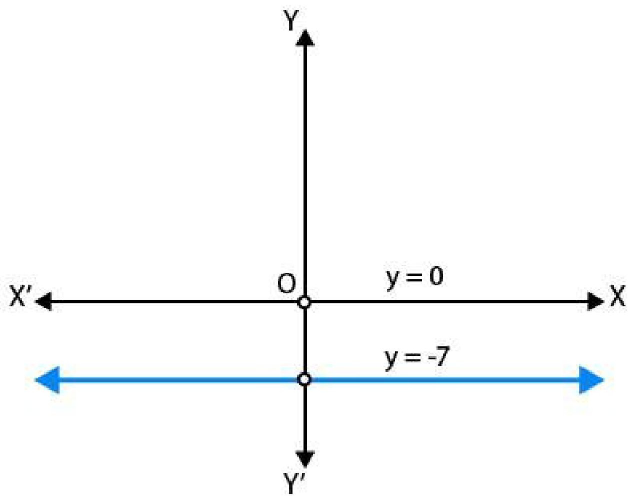
**(A) one solution** **(B) two solutions**
**(C) infinitely many solutions** **(D) no solution**

**Solution:**

**(C) infinitely many solutions**

Explanation:

The given pair of equations are y = 0 and y = – 7.




Graphically, both lines are parallel and have no solution

**5. The pair of equations *x* = *a* and *y* = *b* graphically represents lines which are**

**(A) parallel** **(B) intersecting at (*b, a*)**

**(C) coincident** **(D) intersecting at (*a, b*)**

**Solution:**

**(D) intersecting at (*a, b*)**

<u>Explanation:</u>

Graphically in every condition,

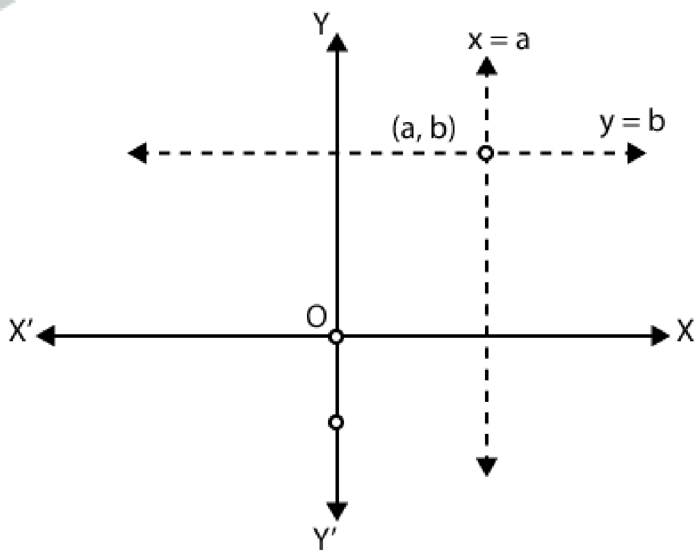
a, b>>0

a, b< 0

a>0, b< 0

a<0, b>0 but a = b≠ 0.

The pair of equations x = a and y = b graphically represents lines which are intersecting at (a, b).




Hence, the cases two lines intersect at (a, b).