

EXERCISE 4.2

Write whether the following statements are True or False? Justify your answers:

1. The point $(0, 3)$ lies on the graph of the linear equation $3x + 4y = 12$.

Solution:

True.

Justification:

We have the equation, $3x + 4y = 12$.

Substituting the values of $x = 0$ and $y = 3$ from the point $(0, 3)$ in the equation,

We get,

$$3(0) + 4(3) = 12 = \text{RHS.}$$

Hence, the point $(0, 3)$ lies on the graph of the linear equation $3x + 4y = 12$.

2. The graph of the linear equation $x + 2y = 7$ passes through the point $(0, 7)$.

Solution:

False.

Justification:

We have the equation, $x + 2y = 7$.

Substituting the values of $x = 0$ and $y = 7$ from the point $(0, 7)$ in the equation,

We get,

$$0 + 2(7) = 14 \neq \text{RHS}$$

Hence, the graph of the linear equation $x + 2y = 7$ passes through the point $(0, 7)$.

3. The graph given below represents the linear equation $x + y = 0$.

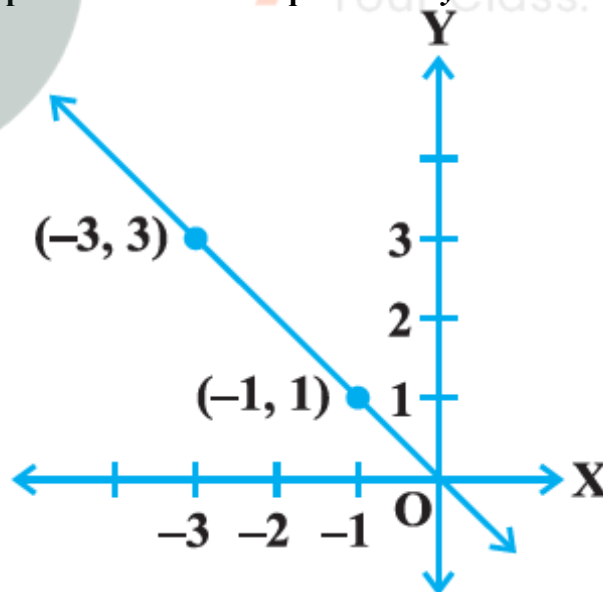


Fig. 4.1

Solution:

True.

Justification:

We have the equation, $x + y = 0$.

$$x + y = 0$$

$$x = -y$$

from the graph, we get the points $(-3, 3)$ and $(-1, 1)$,

Considering the point $(-3, 3)$

$$x = -3 \text{ and } y = 3$$

Hence, substituting $(-3, 3)$ in equation,

We get,

$$-3 = 3 \text{ which satisfies the equation } x = -y$$

Considering the point $(-1, 1)$

$$x = -1 \text{ and } y = 1$$

Hence, substituting $(-1, 1)$ in equation,

We get,

$$-1 = 1 \text{ which satisfies the equation } x = -y$$

Therefore, the given solution: $(-3, 3)$ and $(-1, 1)$ satisfies the given equation $x = -y$.

Hence, the given graph represents the linear equation $x + y = 0$.



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