

Linear Equations: Exercise 4.1

Q.1 The cost of a notebook is twice the cost of a pen. Write a linear equation in two variables to represent this statement.

Sol. Let Rs. x be the cost of notebook and Rs. y be the cost of a pen.

Since, according to question, the cost of a notebook is twice the cost of pen. So, the required linear equation:

$$x = 2y.$$

$$\Rightarrow x - 2y = 0$$

Q.2 Express the following linear equations in the form $ax + by + c = 0$ and indicate the values of a , b and c in each case :

(i) $2x + 3y = 9.3\bar{5}$

(ii) $x - \frac{y}{5} - 10 = 0$

(iii) $-2x + 3y = 6$

(iv) $x = 3y$

(v) $2x = -5y$

(vi) $3x + 2 = 0$

(vii) $y - 2 = 0$

(viii) $5 = 2x$

Sol.

(i) Given: $2x + 3y = 9$

It can be written as $2x + 3y - 9.3\bar{5} = 0$

By comparing it with $ax + by + c = 0$,

We get,

$$a = 2, b = 3 \text{ and } c = -9.3\bar{5}$$

(ii) Given: $x - \frac{y}{5} - 10 = 0$

By comparing it with $ax + by + c = 0$,

We get,

$$a=1, b = -\frac{1}{5} \text{ and } c = -10$$

(iii) Given: $-2x + 3y = 6$

It can be written as $-2x + 3y - 6 = 0$

By comparing it with $ax + by + c = 0$,

We get,

$$a = -2, b = 3 \text{ and } c = -6$$

(iv) Given: $x = 3y$

It can be written as $x - 3y = 0$

By comparing it with $ax + by + c = 0$,

We get,

$$a = 1, b = -3 \text{ and } c = 0$$

(v) Given: $2x = -5y$

It can be written as $2x + 5y = 0$

By comparing it with $ax + by + c = 0$,

We get,

$$a = 2, b = 5 \text{ and } c = 0$$

(vi) Given: $3x + 2 = 0$

By comparing it with $ax + by + c = 0$,

We get,

$$a = 3, b = 0 \text{ and } c = 2$$

(vii) Given: $y - 2 = 0$

By comparing it with $ax + by + c = 0$,

We get,

$$a = 0, b = 1 \text{ and } c = -2.$$

(viii) Given: $5 = 2x$

It can be written as $2x - 5 = 0$

By comparing with $ax + by + c = 0$,

We get,

$$a = 2, b = 0 \text{ and } c = -5.$$

or

$$-2x + 5 = 0,$$

We get,

$$a = -2, b = 0, c = 5$$