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

(Take the cost of a notebook to be ₹ x and that of a pen to be ₹ y)

Solution:

Let the cost of a notebook be = ₹ x

Let the cost of a pen be = ₹ y

According to the question,

The cost of a notebook is twice the cost of a pen.

i.e., cost of a notebook = 2×cost of a pen

x = 2×y

x = 2y

x-2y = 0

x-2y = 0 is the linear equation in two variables to represent the statement, 'The cost of a notebook is twice the cost of a pen.'

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

Solution:

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

Re-arranging the equation, we get,

$$2x+3y-9.3\bar{5}= 0$$

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

$$2x + 3y + (-9.3\bar{5}) = 0$$

Now comparing $2x + 3y + (-9.3\bar{5}) = 0$ with $ax + by + c = 0$

We get,

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

(ii) x –(y/5)–10 = 0

Solution:

The equation x –(y/5)-10 = 0 can be written as,

1x+(-1/5)y +(–10) = 0

Now comparing x+(-1/5)y+(–10) = 0 with ax+by+c = 0

We get,

a = 1

b = -(1/5)

c = -10

(iii) –2x+3y = 6

Solution:

–2x+3y = 6

Re-arranging the equation, we get,

–2x+3y–6 = 0

The equation –2x+3y–6 = 0 can be written as,

(–2)x+3y+(– 6) = 0

Now, comparing (–2)x+3y+(–6) = 0 with ax+by+c = 0

We get, a = –2

b = 3

c =-6

(iv) x = 3y

Solution:

x = 3y

Re-arranging the equation, we get,

x-3y = 0

The equation x-3y=0 can be written as,

1x+(-3)y+(0)c = 0

Now comparing 1x+(-3)y+(0)c = 0 with ax+by+c = 0

We get a = 1

b = -3

c =0

(v) 2x = –5y

Solution:

2x = –5y

Re-arranging the equation, we get,

2x+5y = 0

The equation 2x+5y = 0 can be written as,

2x+5y+0 = 0

Now, comparing 2x+5y+0= 0 with ax+by+c = 0

We get a = 2

b = 5

c = 0

(vi) 3x+2 = 0

Solution:

3x+2 = 0

The equation 3x+2 = 0 can be written as,

3x+0y+2 = 0

Now comparing 3x+0+2= 0 with ax+by+c = 0

We get a = 3

b = 0

c = 2

(vii) y–2 = 0

Solution:

y–2 = 0

The equation y–2 = 0 can be written as,

0x+1y+(–2) = 0

Now comparing 0x+1y+(–2) = 0with ax+by+c = 0

We get a = 0

b = 1

c = –2

(viii) 5 = 2x

Solution:

5 = 2x

Re-arranging the equation, we get,

2x = 5

i.e., 2x–5 = 0

The equation 2x–5 = 0 can be written as,

2x+0y–5 = 0

Now comparing 2x+0y–5 = 0 with ax+by+c = 0

We get a = 2

b = 0

c = -5