Exercise 13.1   Page No: 13.3

Question 1: 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 = 12   (ii) x – y/2 – 5 = 0   (iii) 2x + 3y = 9.35
 (iv) 3x = -7y   (v) 2x + 3 = 0   (vi) y – 5 = 0
(vii) 4 = 3x   (viii) y = x/2

Solution:

(i) Given equation, -2x + 3y = 12

Or - 2x + 3y – 12 = 0

Comparing the given equation with ax + by + c = 0
We get, a = – 2; b = 3; c = -12

(ii) Given equation, x – y/2 – 5= 0

Comparing the given equation with ax + by + c = 0 ,

We get, a = 1; b = -1/2, c = -5

(iii) Given equation, 2x + 3y = 9.35

or 2x + 3y – 9.35 =0

Comparing the given equation with ax + by + c = 0

We get, a = 2 ; b = 3 ; c = -9.35

(iv) Given equation, 3x = -7y

or 3x + 7y = 0

Comparing the given equation with ax+ by + c = 0,

We get, a = 3 ; b = 7 ; c = 0

(v) Given equation, 2x + 3 = 0
or 2x + 0y + 3 = 0

Comparing the given equation with ax + by + c = 0,

We get, a = 2 ; b = 0 ; c = 3

(vi) Given equation, y – 5 = 0
or 0x + y – 5 = 0

Comparing the given equation with ax + by+ c = 0,

We get, a = 0; b = 1; c = -5

(vii) Given equation, 4 = 3x

or 3x + 0y – 4 = 0

Comparing the given equation with ax + by + c = 0,

We get, a = 3; b = 0; c = -4

(viii) Given equation, y = x/2

Or x - 2y = 0
Or x - 2y + 0 = 0

Comparing the given equation with ax + by + c = 0 ,

We get, a = 1; b = -2; c = 0

Question 2: Write each of the following as an equation in two variables:

 (i) 2x = -3   (ii) y=3   (iii) 5x = 7/ 2   (iv) y = 3/2x

Solution:

(i) Given equation, 2x = -3

The above equation can be written in two variables as,

2x + 0y + 3 = 0

(ii) Given equation, y = 3

The above equation can be written in two variables as,

0 x + y – 3 = 0

(iii) Given equation, 5x = 7/2
The above equation can be written in two variables as,

5x + 0y - 7/2 = 0

or 10x + 0y - 7 = 0

(iv) Given equation, y = 3/2 x
The above equation can be written in two variables as,
2y = 3x
3x – 2y = 0
3x – 2y + 0 = 0

Question 3: The cost of ball pen is Rs 5 less than half of the cost of fountain pen. Write this statement as a linear equation in two variables.

Solution:

Let the cost of a fountain pen be y and cost of a ball pen be x.

According to the given statement,
x = y/2 − 5

or 2x = y – 10

or 2x – y + 10 = 0

Which is required linear equation.