## EXERCISE 4.2 PAGE: 86

**1. Give first the step you will use to separate the variable and then solve the equation.**

**(a) $x - 1 = 0$**

**Solution:**

We have to add 1 to both sides of the given equation.

Then, we get

= x – 1 + 1 = 0 + 1

= x = 1

**(b) $x + 1 = 0$**

**Solution:**

We have to subtract 1 from both sides of the given equation.

Then, we get

= x + 1 – 1 = 0 – 1

= x = – 1

**(c) $x - 1 = 5$**

**Solution:**

We have to add 1 to both sides of the given equation.

Then, we get

= x – 1 + 1 = 5 + 1

= x = 6

**(d) $x + 6 = 2$**

**Solution:**

We have to subtract 6 from both sides of the given equation.

Then, we get

= x + 6 – 6 = 2 – 6

= x = – 4

**(e) *y* – 4 = – 7**

**Solution:**

We have to add 4 to both sides of the given equation.

Then, we get

= y – 4 + 4 = – 7 + 4

= y = – 3

**(f) *y* – 4 = 4**

**Solution:**

We have to add 4 to both sides of the given equation.

Then, we get

= y – 4 + 4 = 4 + 4

= y = 8

**(g) *y* + 4 = 4**

**Solution:**

We have to subtract 4 from both sides of the given equation.

Then, we get

= y + 4 – 4 = 4 – 4

= y = 0

**(h) *y* + 4 = – 4**

**Solution:**

We have to subtract 4 from both sides of the given equation.

Then, we get

= y + 4 – 4 = – 4 – 4

= y = – 8

**2. Give first the step you will use to separate the variable and then solve the equation.**

**(a) 3l = 42**

**Solution:**

Now, we have to divide both sides of the equation by 3.

Then, we get

= 3l/3 = 42/3

= l = 14

**(b) b/2 = 6**

**Solution:**

Now, we have to multiply both sides of the equation by 2.

Then, we get

= b/2 × 2= 6 × 2

= b = 12

**(c) p/7 = 4**

**Solution:**

Now, we have to multiply both sides of the equation by 7.

Then, we get

= p/7 × 7= 4 × 7

= p = 28

**(d) 4x = 25**

**Solution:**

Now, we have to divide both sides of the equation by 4

Then, we get

= 4x/4 = 25/4

= x = 25/4

**(e) 8y = 36**

**Solution:**

Now, we have to divide both sides of the equation by 8.

Then, we get

= 8y/8 = 36/8

= x = 9/2

**(f) (z/3) = (5/4)**

**Solution:**

Now, we have to multiply both sides of the equation by 3.

Then, we get

= (z/3) × 3 = (5/4) × 3

= x = 15/4

**(g) (a/5) = (7/15)**

**Solution:**

Now, we have to multiply both sides of the equation by 5.

Then, we get

= (a/5) × 5 = (7/15) × 5

= a = 7/3

**(h) 20t = – 10**

**Solution:**

Now, we have to divide both sides of the equation by 20.

Then, we get

= 20t/20 = -10/20

= x = – ½

**3. Give the steps you will use to separate the variable and then solve the equation.**

**(a) 3n – 2 = 46**

**Solution:**

First, we have to add 2 to both sides of the equation.

Then, we get

= 3n – 2 + 2 = 46 + 2

= 3n = 48

Now,

We have to divide both sides of the equation by 3.

Then, we get

= 3n/3 = 48/3

= n = 16

**(b) 5m + 7 = 17**

**Solution:**

First, we have to subtract 7 from both sides of the equation.

Then, we get

= 5m + 7 – 7 = 17 – 7

= 5m = 10

Now,

We have to divide both sides of the equation by 5.

Then, we get

= 5m/5 = 10/5

= m = 2

**(c) 20p/3 = 40**

**Solution:**

First, we have to multiply both sides of the equation by 3.

Then, we get

= (20p/3) × 3 = 40 × 3

= 20p = 120

Now,

We have to divide both sides of the equation by 20.

Then, we get

= 20p/20 = 120/20

= p = 6

**(d) 3p/10 = 6**

**Solution:**

First, we have to multiply both sides of the equation by 10.

Then, we get

= (3p/10) × 10 = 6 × 10

= 3p = 60

Now,

We have to divide both sides of the equation by 3.

Then, we get

= 3p/3 = 60/3

= p = 20

**4. Solve the following equations.**

**(a) 10p = 100**

**Solution:**

Now,

We have to divide both sides of the equation by 10.

Then, we get

= 10p/10 = 100/10

= p = 10

**(b) 10p + 10 = 100**

**Solution:**

First, we have to subtract 10 from both sides of the equation.

Then, we get

= 10p + 10 – 10 = 100 – 10

= 10p = 90

Now,

We have to divide both sides of the equation by 10.

Then, we get

= 10p/10 = 90/10

= p = 9

**(c) p/4 = 5**

**Solution:**

Now,

We have to multiply both sides of the equation by 4.

Then, we get

= p/4 × 4 = 5 × 4

= p = 20

**(d) – p/3 = 5**

**Solution:**

Now,

We have to multiply both sides of the equation by – 3.

Then, we get

= – p/3 × (- 3) = 5 × (- 3)

= p = – 15

**(e) 3p/4 = 6**

**Solution:**

First, we have to multiply both sides of the equation by 4.

Then, we get

= (3p/4) × (4) = 6 × 4

= 3p = 24

Now,

We have to divide both sides of the equation by 3.

Then, we get

= 3p/3 = 24/3

= p = 8

**(f) 3s = – 9**

**Solution:**

Now,

We have to divide both sides of the equation by 3.

Then, we get

= 3s/3 = -9/3

= s = -3

**(g) 3s + 12 = 0**

**Solution:**

First, we have to subtract 12 from both sides of the equation.

Then, we get

= 3s + 12 – 12 = 0 – 12

= 3s = -12

Now,

We have to divide both sides of the equation by 3.

Then, we get

= 3s/3 = -12/3

= s = – 4

**(h) 3s = 0**

**Solution:**

Now,

We have to divide both sides of the equation by 3.

Then, we get

= 3s/3 = 0/3

= s = 0

**(i) 2q = 6**

**Solution:**

Now,

We have to divide both sides of the equation by 2.

Then, we get

= 2q/2 = 6/2

= q = 3

**(j) 2q – 6 = 0**

**Solution:**

First, we have to add 6 to both sides of the equation.

Then, we get

= 2q – 6 + 6 = 0 + 6

= 2q = 6

Now,

We have to divide both sides of the equation by 2.

Then, we get

= 2q/2 = 6/2

= q = 3

**(k) 2q + 6 = 0**

**Solution:**

First, we have to subtract 6 from both sides of the equation.

Then, we get

= 2q + 6 – 6 = 0 – 6

= 2q = – 6

Now,

We have to divide both sides of the equation by 2.

Then, we get

= 2q/2 = – 6/2

= q = – 3

**(l) 2q + 6 = 12**

**Solution:**

First, we have to subtract 6 from both sides of the equation.

Then, we get

= 2q + 6 – 6 = 12 – 6

= 2q = 6

Now,

We have to divide both sides of the equation by 2.

Then, we get

= 2q/2 = 6/2

= q = 3