EXERCISE 4.3 PAGE: 89

1. Solve the following equations.

(a) 2y + (5/2) = (37/2)

Solution:

By transposing (5/2) from LHS to RHS, it becomes -5/2

Then,

= 2y = (37/2) – (5/2)

= 2y = (37-5)/2

= 2y = 32/2

Now,

Divide both sides by 2.

= 2y/2 = (32/2)/2

= y = (32/2) × (1/2)

= y = 32/4

= y = 8

(b) 5t + 28 = 10

Solution:

By transposing 28 from LHS to RHS, it becomes -28

Then,

= 5t = 10 – 28

= 5t = – 18

Now,

Divide both sides by 5.

= 5t/5= -18/5

= t = -18/5

(c) (a/5) + 3 = 2

Solution:

By transposing 3 from LHS to RHS, it becomes -3

Then,

= a/5 = 2 – 3

= a/5 = – 1

Now,

Multiply both sides by 5.

= (a/5) × 5= -1 × 5

= a = -5

(d) (q/4) + 7 = 5

Solution:

By transposing 7 from LHS to RHS, it becomes -7

Then,

= q/4 = 5 – 7

= q/4 = – 2

Now,

Multiply both sides by 4.

= (q/4) × 4= -2 × 4

= a = -8

(e) (5/2) x = -5

Solution:

First, we have to multiply both sides by 2.

= (5x/2) × 2 = – 5 × 2

= 5x = – 10

Now,

We have to divide both sides by 5.

Then, we get

= 5x/5 = -10/5

= x = -2

(f) (5/2) x = 25/4

Solution:

First, we have to multiply both sides by 2.

= (5x/2) × 2 = (25/4) × 2

= 5x = (25/2)

Now,

We have to divide both sides by 5.

Then, we get

= 5x/5 = (25/2)/5

= x = (25/2) × (1/5)

= x = (5/2)

(g) 7m + (19/2) = 13

Solution:

By transposing (19/2) from LHS to RHS, it becomes -19/2

Then,

= 7m = 13 – (19/2)

= 7m = (26 – 19)/2

= 7m = 7/2

Now,

Divide both sides by 7.

= 7m/7 = (7/2)/7

= m = (7/2) × (1/7)

= m = ½

(h) 6z + 10 = – 2

Solution:

By transposing 10 from LHS to RHS, it becomes – 10

Then,

= 6z = -2 – 10

= 6z = – 12

Now,

Divide both sides by 6.

= 6z/6 = -12/6

= m = – 2

(i) (3/2) l = 2/3

Solution:

First, we have to multiply both sides by 2.

= (3l/2) × 2 = (2/3) × 2

= 3l = (4/3)

Now,

We have to divide both sides by 3.

Then, we get

= 3l/3 = (4/3)/3

= l = (4/3) × (1/3)

= x = (4/9)

(j) (2b/3) – 5 = 3

Solution:

By transposing -5 from LHS to RHS, it becomes 5

Then,

= 2b/3 = 3 + 5

= 2b/3 = 8

Now,

Multiply both sides by 3.

= (2b/3) × 3= 8 × 3

= 2b = 24

And,

Divide both sides by 2.

= 2b/2 = 24/2

= b = 12

2. Solve the following equations.

(a) 2(x + 4) = 12

Solution:

Let us divide both sides by 2.

= (2(x + 4))/2 = 12/2

= x + 4 = 6

By transposing 4 from LHS to RHS, it becomes -4

= x = 6 – 4

= x = 2

(b) 3(n – 5) = 21

Solution:

Let us divide both sides by 3.

= (3(n – 5))/3 = 21/3

= n – 5 = 7

By transposing -5 from LHS to RHS, it becomes 5

= n = 7 + 5

= n = 12

(c) 3(n – 5) = – 21

Solution:

Let us divide both sides by 3.

= (3(n – 5))/3 = – 21/3

= n – 5 = -7

By transposing -5 from LHS to RHS, it becomes 5

= n = – 7 + 5

= n = – 2

(d) – 4(2 + x) = 8

Solution:

Let us divide both sides by -4.

= (-4(2 + x))/ (-4) = 8/ (-4)

= 2 + x = -2

By transposing 2 from LHS to RHS, it becomes – 2

= x = -2 – 2

= x = – 4

(e) 4(2 – x) = 8

Solution:

Let us divide both sides by 4.

= (4(2 – x))/ 4 = 8/ 4

= 2 – x = 2

By transposing 2 from LHS to RHS, it becomes – 2

= – x = 2 – 2

= – x = 0

= x = 0

3. Solve the following equations.

(a) 4 = 5(p – 2)

Solution:

Let us divide both sides by 5.

= 4/5 = (5(p – 2))/5

= 4/5 = p -2

By transposing – 2 from RHS to LHS, it becomes 2

= (4/5) + 2 = p

= (4 + 10)/ 5 = p

= p = 14/5

(b) – 4 = 5(p – 2)

Solution:

Let us divide both sides by 5.

= – 4/5 = (5(p – 2))/5

= – 4/5 = p -2

By transposing – 2 from RHS to LHS, it becomes 2

= – (4/5) + 2 = p

= (- 4 + 10)/ 5 = p

= p = 6/5

(c) 16 = 4 + 3(t + 2)

Solution:

By transposing 4 from RHS to LHS, it becomes – 4

= 16 – 4 = 3(t + 2)

= 12 = 3(t + 2)

Let us divide both sides by 3.

= 12/3 = (3(t + 2))/ 3

= 4 = t + 2

By transposing 2 from RHS to LHS, it becomes – 2

= 4 – 2 = t

= t = 2

(d) 4 + 5(p – 1) =34

Solution:

By transposing 4 from LHS to RHS, it becomes – 4

= 5(p – 1) = 34 – 4

= 5(p – 1) = 30

Let us divide both sides by 5.

= (5(p – 1))/ 5 = 30/5

= p – 1 = 6

By transposing – 1 from RHS to LHS, it becomes 1

= p = 6 + 1

= p = 7

(e) 0 = 16 + 4(m – 6)

Solution:

By transposing 16 from RHS to LHS, it becomes – 16

= 0 – 16 = 4(m – 6)

= – 16 = 4(m – 6)

Let us divide both sides by 4.

= – 16/4 = (4(m – 6))/ 4

= – 4 = m – 6

By transposing – 6 from RHS to LHS, it becomes 6

= – 4 + 6 = m

= m = 2

4. (a) Construct 3 equations starting with x = 2

Solution:

The first equation is,

Multiply both sides by 6.

= 6x = 12 … [equation 1]

The second equation is,

Subtracting 4 from both sides,

= 6x – 4 = 12 -4

= 6x – 4 = 8 … [equation 2]

The third equation is,

Divide both sides by 6.

= (6x/6) – (4/6) = (8/6)

= x – (4/6) = (8/6) … [equation 3]

(b) Construct 3 equations starting with x = – 2

Solution:

The first equation is,

Multiply both sides by 5.

= 5x = -10 … [equation 1]

The second equation is,

Subtracting 3 from both sides,

= 5x – 3 = – 10 – 3

= 5x – 3 = – 13 … [equation 2]

The third equation is,

Dividing both sides by 2.

= (5x/2) – (3/2) = (-13/2) … [equation 3]