

**Solution****CLASS 7 MATHEMATICS WORKSHEET -4 ( UPTO JULY 2023) SIMPLE EQUATIONS****Class 07 - Mathematics****Section A**

1.

**(b)**  $6x + 7$

**Explanation:** In an equation there is always an equality sign. The equality sign shows that the value of the expression to the left of the sign (the left hand side or L.H.S.) is equal to the value of the expression to the right of the sign (the right hand side or R.H.S.). In the given equation the L.H.S. is  $(6x + 7)$  and the R.H.S. is 19, hence in the above equation the L.H.S. is  $(6x + 7)$  and the R.H.S. is 19.

2.

**(b)** undisturbed

**Explanation:** Yes, If we multiply both sides of the equation by the same number, the balance is undisturbed. For Example:

$$n \times 2 = 9 \times 2$$

$$2n = 18$$

$$n = \frac{18}{2} = 9$$

3.

**(b)**  $x = 2$

**Explanation:**  $7x + 5 = 19$

$$7x = 19 - 5$$

$$7x = 14$$

$$x = \frac{14}{7} = 2$$

4.

**(b)**  $x - 2 = 8$

**Explanation:** Let the number be  $x$

$$x - 2 = 8$$

5. **(a)** 12

**Explanation:**  $2p - 1 = 23$

$$2p = 23 + 1$$

$$\Rightarrow 2p = 24$$

$$\Rightarrow p = \frac{24}{2}$$

$$\Rightarrow p = 12$$

6.

**(b)** 3

**Explanation:**  $10 - 3y = 1$

$$\Rightarrow 3y = 10 - 1$$

$$\Rightarrow 3y = 9$$

$$\Rightarrow y = \frac{9}{3} = 3$$

7. **(a)** 2

**Explanation:** As per the question, When you multiply a number by 6 and subtract 5 from the product, you get 7

Let the number be  $x$

$$6x - 5 = 7$$

$$6x = 7 + 5$$

$$6x = 12$$

$$x = \frac{12}{6}$$

$$x = 2$$

8.

**(d)** 60 m

**Explanation:** Let the height of the pole be  $x$  m. According to question, we have

$$\frac{1}{4}x + \frac{2}{5}x + 21 = x \Rightarrow x - \frac{1}{4}x - \frac{2}{5}x = 21$$

$$\Rightarrow \frac{20x - 5x - 8x}{20} = 21 \Rightarrow \frac{7x}{20} = 21 \Rightarrow x = 60$$

$\therefore$  Height of the pole = 60 m

9.

(c)  $1\frac{3}{4}$

**Explanation:** We have,  $\left\{ \left( x - \frac{1}{2} \right) \times 4 + 25 \right\} \div 3 = 10$

$$\Rightarrow \{4x - 2 + 25\} \div 3 = 10$$

$$\Rightarrow \frac{4x + 23}{3} = 10 \Rightarrow 4x + 23 = 30$$

$$\Rightarrow 4x = 7 \Rightarrow x = \frac{7}{4} \Rightarrow x = 1\frac{3}{4}$$

10.

(c)  $3z + 8 = 3 + z$

**Explanation:** Here:  $3z + 8 = 3 + z$

$$\Rightarrow 3z - z = 3 - 8$$

$$\Rightarrow 2z = -5$$

$$\Rightarrow z = \frac{-5}{2}$$

$\frac{-5}{2}$  is not an integer.

### Section B

11. (a) True

**Explanation:** True

12.

(b) False

**Explanation:** False

Here, we have

$$\frac{5x - 7}{2} = y$$

$$\Rightarrow \frac{45 - 7}{2} = y$$

$$\Rightarrow y = \frac{38}{2} = 19$$

$\therefore y = 19, y \neq 28$

13. (a) True

**Explanation:** True

14. 1. 10

15. 1. 0

16. 1. 72

17. (a) Both A and R are true and R is the correct explanation of A.

**Explanation:**  $x + 5 = 5$

$$x + 5 - 5 = 5 - 5$$

$$x = 0$$

So,  $x = 0$  is satisfied the equation  $x + 5 = 5$

So, (A) and (R) are the true statement and (R) is the correct reason for (A).

18. (a) Both A and R are true and R is the correct explanation of A.

**Explanation:** The expressions are formed by performing operations like addition, subtraction, division, and multiplication on the variables. And  $2m - 5$  is an expression in variable  $m$ .

So, (A) and (R) are the true statement and (R) is the correct reason for (A).

19. (a) Both A and R are true and R is the correct explanation of A.

**Explanation:** Suppose Sania's present age is  $x$  years.

Three times Sania's age is  $3x$ .

$\therefore$  Sunita's present age is  $= 3x$  years.

According to the given condition

$$x + 3x = 40$$

So, (A) and (R) are the true statement.

20.

**(b)** Both A and R are true but R is not the correct explanation of A.

**Explanation:** The meaning of transposing a number is to change its sign means a positive sign becomes negative and a negative sign becomes positive. Hence, When we transpose a number from one side of the equation to the other side, we change its sign. An equation is a mathematical statement that two expressions are equal.

So, (A) and (R) are the true statement and (R) is not the reason for (A).

### Section C

21. The given equation is

$$3s + 12 = 0$$

Subtract  $-12$  from both sides

$$3s + 12 - 12 = 0 - 12$$

$$\therefore 3s = -12$$

Divide both sides by 3,

$$\frac{3s}{3} = \frac{-12}{3}$$

$$\therefore s = -4$$

It is the required solution

22. Let the base angle = b

Now, as per the question, we have,

$$\text{Vertex angle} = 2 \times (\text{base angle}) = 2b$$

Now,

$$\text{Sum of interior angles of a triangle} = 180^\circ$$

We can write this as,

$$b + b + 2b = 180^\circ$$

$$4b = 180^\circ, b = 45^\circ$$

23. The given equation is

$$3n - 2 = 46$$

Add 2 to both sides

$$3n - 2 + 2 = 46 + 2$$

$$3n = 48$$

Divide both sides by

$$\frac{3n}{3} = \frac{48}{3}$$

$$\therefore n = 16$$

It is the required solution

24. The given equation is

$$\frac{3p}{4} = 6$$

Multiply both sides by 4,

$$\frac{3p}{4} \times 4 = 6 \times 4$$

$$\therefore 3p = 24$$

Divide both sides by 3,

$$\frac{3p}{3} = \frac{24}{3}$$

$$\therefore p = 8$$

It is the required solution

25. Let a small box contain m mangoes.

According to question,

A large box contains 8 small boxes i.e, 8m mangoes, and 4 loose mangoes, that is,  $8m + 4$  mangoes.

Total mangoes in the large box = 100.

Thus, the required equation is,  $8m + 4 = 100$ .

26. Let the number of fruit trees be x.

According to the question,

$$3 \times \text{number of fruit trees} + 2 = \text{Number of non-fruit trees}$$

We can write this as,

$$3x + 2 = 77$$

$$3x = 77 - 2$$

$$3x = 75$$

Now,

Dividing both sides by 3, we get:

$$\frac{3x}{3} = \frac{75}{3}$$

$$\text{Thus, } x = 25$$

Hence, the number of fruit trees was 25.

27. Here,

$$4(2 - x) = 8$$

Dividing both sides by 4 we get,

$$(2 - x) = \frac{8}{4}$$

$$\text{or, } (2 - x) = 2$$

Subtracting 2 from both sides, we get,

$$-x = 2 - 2$$

$$\text{or, } -x = 0$$

$$\text{or, } x = 0 \text{ [Multiplying both sides by -1]}$$

28. Let the number be  $x$

Now divided by 6, we get  $\frac{x}{6}$

$$\text{Now, } \frac{x}{6} = 6$$

$$\Rightarrow x = 6 \times 6$$

$$\Rightarrow x = 36$$

Therefore the required number is 36.

29. Let us say the number is  $p$ ;

Now,  $p$  multiplied by 6 is  $6p$ .

Subtracting 5 from  $6p$  is represented as  $6z - 5$ .

And, the result is 7.

Thus, the required equation is  $6z - 5 = 7$

30. Let the each base angle be  $x^\circ$

Given vertical angle =  $40^\circ$

In a triangle, the sum of three angles =  $180^\circ$

$$\text{i.e, } x^\circ + x^\circ + 40^\circ = 180^\circ$$

$$2x^\circ = 180^\circ - 40^\circ = 140^\circ$$

$$\text{Therefore, } x^\circ = \frac{140^\circ}{2} = 70^\circ.$$

Hence, each base angle of the triangle =  $70^\circ$ .

### Section D

$$31. \frac{x-7}{3} = \frac{8-3x}{4}$$

$$\Rightarrow 4(x - 7) = 3(8 - 3x)$$

$$\Rightarrow 4x - 28 = 24 - 9x$$

$$\Rightarrow 9x + 4x = 24 + 28$$

$$\Rightarrow 13x = 52$$

$$\Rightarrow x = \frac{52}{13} = 4$$

$$\text{Check: L.H.S} = \frac{4-7}{3} = \frac{-3}{3} = -1$$

$$\text{R.H.S.} = \frac{8-3(4)}{4} = \frac{8-12}{4} = \frac{-4}{4} = -1 = \text{L.H.S}$$

32. We have to frame the equation on the basis of given statement

And then solve the equation so framed.

Let the number be 'a'.

As per the statement,

We can write the equation as,

$$\frac{a+19}{5} = 8$$

Multiplying 5 to both the sides, we get

$$\frac{a+19}{5} \times 5 = 8 \times 5$$

Therefore,

$$a + 19 = 40$$

$$a = 40 - 19$$

$$a = 21$$

33.  $0.3x + 0.4 = 0.28x + 1.16$

$$0.3x - 0.28x = 1.16 - 0.4$$

$$0.02x = 0.76$$

$$x = \frac{0.76}{0.02} = \frac{76}{2} = 38$$

Hence,  $x = 38$ .

34. Let Raju has  $x$  marbles

7 more than 5 times marbles with Raju =  $7 + 5x$

Given marbles with Ravi = 37

According to the problem,  $7 + 5x = 37$

$$5x = 37 - 7 = 30$$

$$x = \frac{30}{5} = 6$$

Hence Raju has 6 marbles .

35. Let Raju's age be  $y$  years.

Three times Raju's age is  $3y$  years.

Raju's father's age is 5 years more than  $3y$

Therefore, Raju's father's age =  $(3y + 5)$  years

Also, given that Raju's father is 44 years old.

Therefore,  $3y + 5 = 44$ .

To solve it, we first transpose 5, to get

$$3y = 44 - 5 = 39$$

Dividing both sides by 3, we get  $y = 13$

Therefore, Raju's age is 13 years.

### Section E

36. Let the length of his total journey =  $x$  km

Distance travelled by train =  $\frac{3x}{5}$  km

Distance travelled by taxi =  $\frac{x}{4}$  km

Distance travelled by bus =  $\frac{x}{8}$  km

Distance travelled on foot = 2 km

Therefore,  $\frac{3x}{5} + \frac{x}{4} + \frac{x}{8} + 2 = x$

$$\frac{3x}{5} + \frac{x}{4} + \frac{x}{8} - x = -2$$

$$\frac{24x + 10x + 5x - 40x}{40} = -2$$

$$\frac{39x - 40x}{40} = -2$$

$$\frac{-x}{40} = -2$$

$$-x = -2 \times 40 = -80$$

$$x = 80$$

Hence, the total distance travelled by the man = 80 km.

37. Let no. of 50p coins =  $x$

No. of 25p coins =  $6x$

Amount of 50p coins =  $50x$  paise

Amount of 25p coins =  $6x \times 25 = 150x$  paise

Total amount in the bag =  $50x + 150x = \text{Rs. } 200 = 20,000$  paise

$$200x = 20000$$

$$x = \frac{20000}{200} = 100$$

Therefore, no. of 50p coins = 100 and

No. of 25p coins =  $6 \times 100 = 600$ .

38. Let the number of ₹ 50 notes =  $x$

Then the number of ₹ 10 notes =  $1 + x$

Value of ₹ 50 notes =  $50x$

Value of ₹ 10 notes =  $10(1 + x) = 10 + 10x$

Total amount in the purse = ₹250

i.e.,  $50x + 10 + 10x = 250$

$60x = 250 - 10 = 240$

$x = \frac{240}{60} = 4$

So, number of ₹ 50 notes = 4 and

number of ₹ 10 notes =  $1 + 4 = 5$ .

### Section F

39. Read the text carefully and answer the questions:

Sameer used 320 m long wire to fence rectangular shaped plot whose length is thrice its breadth.



(i) 1. 3

(ii) (b) 120 m

**Explanation:** 120 m

(iii)(d) 40 m

**Explanation:** 40 m

(iv)(a)  $4800 \text{ m}^2$

**Explanation:**  $4800 \text{ m}^2$

(v) (b) False

**Explanation:** False

40. Read the text carefully and answer the questions:

The cost of 3 notebooks, 10 pencils and 5 similar pens is ₹ 500. If the notebook cost is ₹ 20 more than the pen and pencil costs ₹ 10 less than pen. Let price of pen be ₹  $x$ .



(i) 1.  $3(x + 20)$

(ii) (d) 30

**Explanation:** 30

(iii)(c) ₹ 150

**Explanation:** ₹ 150

(iv)(d) ₹ 100

**Explanation:** ₹ 100

(v) **(b)** False

**Explanation:** False