STD - VII

Assignment - 6

1. **Evaluate:**

   $\boldsymbol{4x^2 + 4xy + y^2}$ **if** $\boldsymbol{x = 2}$, $\boldsymbol{y = 1.}$

   Solution:

   We get

   $$4(2)^2 + 4(2)(1) + (1)^2$$

   $$16 + 8 + 1 = 25$$

2. **Solve for** $\boldsymbol{x}$**.** $\boldsymbol{2x - 7 = 3x + 5}$

   Solution:

   $$2x - 7 = 3x + 5$$

   $$\Rightarrow \quad 2x - 3x = 5 + 7$$

   $$\Rightarrow \quad -x = 12$$

   $$\therefore \quad x = -12$$

3. Solve for x. $\mathbf{0.7}\,\boldsymbol{x} + \frac{\mathbf{2}}{\mathbf{5}}\,\boldsymbol{x} = \mathbf{0.5}\,\boldsymbol{x} + \mathbf{6}$

Solution:

$$\frac{7}{10}\,x + \frac{2}{5}\,x = \frac{5}{10}\,x + 6$$

$$\Rightarrow \quad \frac{7}{10}\,x + \frac{2}{5}\,x - \frac{5}{10} = 6$$

$$\Rightarrow \quad \frac{7x + 4x - 5x}{10} = 6$$

$$\Rightarrow \quad \frac{6x}{10} = 6$$

$$\Rightarrow \quad x = 6 \times \frac{10}{6} = 10$$

$$\therefore \quad x = 10$$

4. $\frac{y-3}{3} = \frac{2y-1}{3} + 5$ **find** y.

Solution:

$$\frac{y-3}{3} = \frac{2y-1}{3} + 5$$

$$\Rightarrow \quad \frac{y-3}{3} - \frac{(2y-1)}{3} = 5$$

$$\Rightarrow \quad \frac{y-3-2y+1}{3} = 5$$

$$\Rightarrow \quad -y - 2 = 15$$

$$\Rightarrow \quad -y = 17$$

$$\therefore \quad y = -17$$

Assignment – 7

Ratio & Proportion

1. Express 7.5 : 12 in the simplest form.

Solution:

$$7.5 \ : \ 12$$

$$\frac{7.5}{12} = \frac{75}{120} = \frac{5}{6} = 5 \ : \ 6$$

2. 16, 28, x are in continued proportion find x.

Solution:

$$16 \ : \ 28 \ = \ 28 \ : \ x$$

$$16 \times x \ = \ 28 \times 28$$

$$x = \frac{\overset{7}{\cancel{28}} \times \overset{7}{\cancel{28}}}{\underset{4}{\cancel{16}}} = 49$$

$$\therefore \quad x = 49$$

3. Show that 3, 5, 12, 20 are in proportion.

Solution:

To Prove.

$$3 : 5 = 12 : 20$$

$$3 \times 20 = 60,$$

$$5 \times 12 = 60$$

$\therefore$ There are in proportion.

4. First 3 term of a proportion is 4, 7, 8 respectively find the 4th term.

Solution:

$$4 : 7 = 8 : x$$

$$4 \times x = 7 \times 8$$

$$x = \frac{7 \times \cancel{8}^{2}}{\cancel{4}} = 14$$

$$\therefore \quad x = 14$$

Assignment – 8

Percentage

1. Find $8\frac{2}{3}$ % of 33.

Solution:

$$8\frac{2}{3}\% \text{ of } 33 = \frac{26}{300} \times \overset{11}{\cancel{33}}$$

$$\frac{286}{100} = 2.86$$

2. 9 % of a number is 63. Find the number.

Solution:

9% of $x = 63$

$$\frac{9}{100} \times x = 63$$

$$x = \frac{\overset{7}{\cancel{63}} \times 100}{\cancel{9}} = 700$$

$\therefore \quad x = 700$

3. What % of 500 is 31.5.

Solution:

x % of 500 = 31.5

$$\frac{x}{\cancel{100}} \times 5\cancel{00} = 31.5$$

$$x = \frac{31.5}{5} = 6.3$$

$$\therefore \quad x = 6.3$$

4. Find the % of pure gold in 18-carat gold if 24-carat gold in 100% pure gold.

Solution:

18 carat gold means

Pure gold = 18 parts out of 24 parts

$$\therefore \quad \% \text{ of gold in it} = \frac{\cancel{18}^{3}}{\cancel{24}_{\cancel{4}}} \times \cancel{100}^{25}$$

$$= 75\%$$

Assignment – 9

Profit & Loss

1. By selling a dress for ₹ 1,650 the shopkeeper gains 10%. Find the cost prize?

Solution:

Let the cost prize = ₹ x

S.P = ₹ 1,650

gain % = 10%

C.P = $\frac{100 \times S.P}{100 + gain\ \%} = \frac{100 \times 1650}{100 + 10}$

$$\frac{100 \times \overset{15}{\cancel{1650}}}{\underset{1}{\cancel{110}}} = 1500$$

∴ Cost price = ₹ 1, 500

2. A Vivek purchased a table for ₹ 12,500 and he sold it for ₹ 14,000. What is the profit %?

Solution:

C. P. of the table = ₹ 12,500

S. P. of the table = ₹ 14,000

Profit = S.P. – C.P.

= ₹ 14,000 – ₹ 12,500 = ₹ 1,500

$$\text{Profit \%} \quad = (\div 5) \quad \frac{\overset{3}{\cancel{1,500}}}{\underset{25}{\cancel{12,500}}} \times \overset{4}{\cancel{100}}$$

$\therefore$ Profit % = 12%

3. By selling a shirt for ₹ 2,240 a shopkeeper gain a profit of 12%. Find the cost prize of the shirt?

Solution:

S.P. = ₹ 2240

gain % = 12%

$$\text{C. P.} = \left(\frac{100}{100+g\%}\right) \times \text{S. P.}$$

$$= \left(\frac{100}{100+12}\right) \times 2240$$

$$= \frac{100}{\cancel{112}} \times \overset{20}{\cancel{2240}}$$

Cost price the shirt = ₹ 2,000

Assignment -10

Simple Interest

1. **Find the simple interest when principal = ₹12,000 , rate = 6% and time = 5 years.**

Solution:

$$\text{S. I} = \frac{P \times T \times R}{100}$$

$$= \frac{12000 \times 6 \times 5}{100}$$

$$= 120 \times 30$$

$$= ₹\ 3{,}600$$

2. **Find the time when principal = ₹ 24,000, rate = 5% per annual and S.I = ₹ 2,400.**

Solution:

$$\text{T} = \frac{S.I \times 100}{P \times R}$$

$$= \frac{2400 \times 100}{24000 \times 5}$$

$$= 2 \text{ years}$$

3. At what rate percent per annum simple interest will a sum double itself in 10 years.

Solution:

Let the P $= x$, then A $= 2x$, S.I $= 2x - x = x$.

$$\text{rate } \% = \frac{S.I \times 100}{P \times T}$$

$$= \frac{\cancel{x} \times 10\cancel{0}}{\cancel{x} \times 1\cancel{0}}$$

$$= 10\%$$