

Class 8 work set
Solution

① Let CP of laptop = x
Profit = 12% of x
 $= \frac{12}{100} x$

$$SP_1 = CP + \text{profit}$$
$$= x + \frac{12x}{100}$$

$$= \frac{112}{100} x$$

$$SP_2 = \frac{112x}{100} + 1200$$

$$\text{Profit \%} = 20\% \text{ of } x$$

$$= \frac{20}{100} x$$

$$CP = SP_2 - \text{Profit}$$

$$x = \frac{112}{100} x + 1200 - \frac{20x}{100}$$

$$x - \frac{92}{100} x = 1200$$

$$x = \text{Rs } 15000$$

$$\therefore CP = \text{Rs } 15000$$

② SP of 1 Saree = Rs 2200
Profit on one Saree = 10%
Let CP = x .

$$x + 10\% \text{ of } x = 2200$$

$$\frac{11x}{10} = 2200$$

$$x = 2000$$

$$\therefore CP \text{ of 1 Saree} = \text{Rs } 2000$$

2nd
SP of Saree = Rs 2200
Loss = 12%

$$x - 12\% \text{ of } x = 2200$$

$$x - \frac{12}{100}x = 2200$$

$$\frac{88}{100}x = 2200$$

$$x = \frac{2200 \times 100}{88}$$

$\therefore$ CP of 2nd Saree = Rs 2500

③ $A = P\left(1 + \frac{R}{100}\right)^n$

$$18000 = P\left(1 + \frac{R}{100}\right)^2 \quad \text{--- (1)}$$

$$40500 = P\left(1 + \frac{R}{100}\right)^4$$

$$\underbrace{P\left(1 + \frac{R}{100}\right)^2}_{18000} \left(1 + \frac{R}{100}\right)^2 = 40500$$

$$18000 \left(1 + \frac{R}{100}\right)^2 = 40500 \quad (\text{from (1)})$$

$$\left(1 + \frac{R}{100}\right)^2 = \frac{40500}{18000}$$

$$\left(1 + \frac{R}{100}\right)^2 = \frac{9}{4}$$

Taking square root

$$1 + \frac{R}{100} = \frac{3}{2}$$

$$R = 50\%$$

$$18000 = P \left(1 + \frac{50}{100} \right)^2$$

$$P \left(\frac{3}{2} \right)^2 = 18000$$

$$P = \frac{18000 \times 4}{9}$$

$$\therefore P = \text{Rs } 8000$$

4 $P = \text{Rs } 62500$

$$R = 8\% \text{ p.a.}$$

$$\text{Time} = 1\frac{1}{2} \text{ years.}$$

$$\begin{aligned} \text{A compounded annually} &= P \left(1 + \frac{R}{100} \right)^n \\ &= 62500 \left(1 + \frac{8}{100} \right)^1 \\ &= \text{Rs } 67500 \end{aligned}$$

$$\begin{aligned} \text{B Interest for half year} &= \frac{67500 \times 8 \times 8}{12 \times 100 \times 2} \\ &= \text{Rs } 2700 \end{aligned}$$

$$\begin{aligned} \text{Amount compounded yearly for } 1\frac{1}{2} \text{ years} &= 67500 + 2700 \\ &= \text{Rs } 70200 \end{aligned}$$

$$\left. \begin{array}{l} \text{Amount for } 1\frac{1}{2} \text{ years} \\ \text{Compounded half yearly} \end{array} \right\} = 62500 \left(1 + \frac{8}{2 \times 100} \right)^3$$

$$= 62500 \left(\frac{26}{25} \right)^3$$

$$= \text{Rs } 70304$$

$$\text{Difference} = 70304 - 70200$$

$$= \text{Rs } 104$$

⑤ Let the 2nd no = x .

$$1^{\text{st}} \text{ no} = x - 20\% \cdot x$$

Given $x = 25\% \text{ of } 100 + 100$

$$x = \frac{25 \times 100}{100} + 100$$

$$\therefore x = 125$$

$$1^{\text{st}} \text{ no} = 125 - \frac{20 \times 125}{100}$$

$$\therefore 1^{\text{st}} \text{ no} = 100$$

6)

Let MP of article = y

CP for the man = $y - \frac{30}{100}y$ (discount)

$$CP = \frac{7}{10}y$$

$$Sp = MP + 10\% \text{ of } MP$$

$$= y + \frac{10}{100}y$$

$$Sp = \frac{11}{10}y$$

$$\text{Profit} = \text{Sp} - \text{cp} \\ = \frac{11}{10}y - \frac{7}{10}y$$

$$\text{Profit} = \frac{4y}{10}$$

$$\text{Profit \%} = \frac{\text{Profit} \times 100}{\text{cp}}$$

$$= \frac{4y \times 10 \times 100}{10 \times 7y}$$

$$= \frac{400}{7}$$

$$= 57\frac{1}{7} \%$$

(7)

$$\text{MP} = \text{Rs } 180$$

$$\text{SP} = \text{Rs } 108.$$

$$\text{Let First discount} = x\%$$

$$\text{2nd discount} = 25\%$$

$$\text{SP after 1st discount} = 180 - x\% \text{ of } 180 \quad \text{--- (1)}$$

$$\text{SP after 2nd discount} = \text{(1)} - 25\% \text{ of (1)}$$

$$\text{Rs } 108 = \left(180 - \frac{x \times 180}{100}\right) - \frac{25}{100} \left(180 - \frac{x \times 180}{100}\right)$$

$$\text{Rs } 108 = \left(180 - \frac{18x}{10}\right) \left[1 - \frac{25}{100}\right]$$

$$\left(180 - \frac{18x}{10}\right) \left(\frac{3}{4}\right) = 108$$

$$180 - \frac{18x}{10} = 108 \times \frac{4}{3}$$

$$180 - \frac{18x}{10} = 144$$

$$-\frac{18x}{10} = 144 - 180$$

$$-\frac{18x}{10} = -36$$

$$x = \frac{36 \times 10}{18}$$

$$\boxed{x = 20\%}$$

⑧

$$SI = Rs 300$$

$$n = 3$$

$$r = 10\%$$

$$SI = \frac{PTR}{100}$$

$$300 = \frac{P \times 3 \times 10}{100}$$

$$\boxed{P = Rs 1000}$$

$$A = P \left(1 + \frac{r}{100}\right)^n$$

$$= 1000 \times \left(1 + \frac{10}{100}\right)^3$$

$$A = 1000 \times \frac{110}{100} \times \frac{110}{100} \times \frac{110}{100}$$

$$\boxed{A = Rs 1331}$$