$\frac{1}{8}x = 1080 - x$

$\Rightarrow x = 8640 - 8x$

$\Rightarrow 9x = 8640$

$\Rightarrow \mathbf{x} = 960$

$\therefore$ CP = Rs. 960

Now, gain $= \frac{1}{8}\mathbf{x}$

$= \frac{960}{8}$

= Rs. 120

$\therefore$ Gain percentage $= \left(\frac{120}{960} \times 100\right)\%$

$= 12\frac{1}{2}\%$

Q17.

Answer :

SP of the pen = Rs. 54

Let Rs x be the CP of the pen.

Loss = Rs. $\frac{x}{10}$

SP = CP − Loss

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

= Rs. $\frac{9x}{10}$

Now, we have $\frac{9x}{10} = 54$

$\Rightarrow x = 54 \times \frac{10}{9}$

$\Rightarrow \mathbf{x} = 60$

$\therefore$ CP of the pen = Rs. 60

Now, loss $= \frac{\mathbf{x}}{10}$

$$= \frac{60}{10}$$

$$= \text{Rs. } 6$$

$$\therefore \text{ Loss percentage} = \left(\frac{\text{loss}}{\text{CP}} \times 100\right)\%$$

$$= \left(\frac{6}{60} \times 100\right)\%$$

$$= 10\%$$

Q18.

Answer :

Let $Rs\ x$ *be the* CP *of the* table.

Case I :

$$\text{Loss percentage} = 10\%$$

$$\Rightarrow \text{Loss}\,\% = \left(\frac{\text{loss}}{\text{CP}} \times 100\right)\%$$

$$\Rightarrow 10 = \frac{\text{loss}}{x} \times 100$$

$$\Rightarrow \frac{\text{Loss}}{x} = \frac{1}{10}$$

$$\Rightarrow \text{Loss} = \text{Rs } \frac{x}{10}$$

Suppose that SP_1 is the selling price when he incurs a loss of 10%.

$\text{Loss} = \text{Rs } \frac{x}{10}$

$\Rightarrow \text{CP} - \text{SP}_1 = \frac{x}{10}$

$\Rightarrow \text{SP}_1 = x - \frac{x}{10}$

$= \text{Rs } \frac{9x}{10}$

Case II :

Gain percentage $= 10\%$

$\Rightarrow \text{Gain}\,\% = \left(\frac{\text{gain}}{\text{CP}} \times 100\right)\%$

$\Rightarrow 10 = \frac{\text{gain}}{x} \times 100$

$\Rightarrow \frac{\text{Gain}}{x} = \frac{1}{10}$

$\Rightarrow \text{Gain} = \text{Rs } \frac{x}{10}$

Suppose that SP_2 is the selling price when he makes gain of 10%.

Q19.

Answer :

Let $Rs\ x\ be\ the$ CP.

$\text{Gain}_1 \text{ percentage} = \left(\frac{\text{gain}_1}{\text{CP}} \times 100\right)\%$

$\Rightarrow 15 = \frac{\text{gain}_1}{x} \times 100$

$\Rightarrow \text{Gain}_1 = \text{Rs } \frac{15x}{100}$

$\text{Again, gain}_2 \text{ percentage} = \left(\frac{\text{gain}_2}{\text{CP}} \times 100\right)\%$

$\Rightarrow 8 = \frac{\text{gain}_2}{x} \times 100$

$\Rightarrow \text{Gain}_2 = \text{Rs } \frac{8x}{100}$

According to the question, we have :

$\text{Gain}_1 - \text{gain}_2 = 56$

$\Rightarrow \frac{15x}{100} - \frac{8x}{100} = 56$

$\Rightarrow \frac{7x}{100} = 56$

$\Rightarrow 7x = 5600$

$\Rightarrow x = 800$

Hence, the CP of the chair is Rs 800.

Q20.

Answer :

Let the cost price of the cycle be Rs x.

$\text{SP of the cycle at 10\% gain} = \text{Rs } \left\{\frac{100 + \text{gain \%}}{100} \times \text{CP}\right\}$

$= \text{Rs } \left\{\frac{100+10}{100} \times x\right\}$

$= \text{Rs } \left\{\frac{110x}{100}\right\}$

$= \text{Rs. } \frac{11x}{10}$

$\text{SP of the cycle at 14\% gain} = \text{Rs } \left\{\frac{100+14}{100} \times x\right\}$

$= \text{Rs } \left\{\frac{114x}{100}\right\}$

$= \text{Rs } \left\{\frac{57x}{50}\right\}$

$\therefore \frac{57x}{50} - \frac{11x}{10} = 65$

$\Rightarrow \left(\frac{57x}{50} - \frac{55x}{50}\right) = 65$

$\Rightarrow \frac{57x-55x}{50} = 65$

$\Rightarrow \frac{2x}{50} = 65$

$\Rightarrow 2x = 3250$

$\Rightarrow x = 1625$

Therefore, the cost price of the cycle is Rs 1625.

Q21.

Answer :

CP of the first variety of wheat = Rs $40 \times 6.25 = \textbf{Rs. } 250$

CP of second variety of wheat = Rs $30 \times 7 = \boldsymbol{Rs.}\ 210$

Total CP = Rs (250 + 210)

= Rs 460

Total amount of wheat = (40 + 30) kg

= 70 kg

$$\textbf{Now, gain percentage} = \frac{\textbf{gain}}{\textbf{CP}} \times 100$$

$$\Rightarrow \textbf{Gain} = \frac{(\textbf{gain \%}) \times \textbf{CP}}{100}$$

$$\Rightarrow \textbf{Gain} = \frac{460 \times 5}{100}$$

$$= \textbf{Rs } 23$$

$$\therefore \textbf{ SP } = \textbf{ CP } + \textbf{ gain}$$

$$= 460 + 23$$

$$= \textbf{Rs } 483$$

∴ Rate per kg = Rs $\frac{483}{70} = \boldsymbol{Rs}\ 6.9$

Q22.

Answer :

CP of the first bat = Rs 560

Gain percentage = 15%

$$\textbf{SP of the first bat} = \textbf{Rs} \left\{ \frac{100 + \textbf{gain \%}}{100} \times \textbf{CP} \right\}$$

$$= \textbf{Rs} \left\{ \frac{100 + 15}{100} \times 560 \right\}$$

$$= \textbf{Rs} \left\{ \frac{115}{100} \times 560 \right\}$$

$$= \textbf{Rs } 644$$

CP of the second bat = Rs 240

Loss percentage = 5%

$$\textbf{SP of the second bat} = \textbf{Rs} \left\{ \frac{100 - \textbf{loss \%}}{100} \times \textbf{CP} \right\}$$

$$= \textbf{Rs} \left\{ \frac{100 - 5}{100} \times 240 \right\}$$

$$= \textbf{Rs} \left\{ \frac{95}{100} \times 240 \right\}$$

$$= \textbf{Rs } 228$$

Total CP of the two bats = Rs (560 + 240) = Rs 800

Total SP of the two bats = Rs (644 + 228) = Rs 872

Since SP >CP, there is gain in the whole transaction.

********** END **********