Exercise 10A

Let Rs x be the SP of each bottle and Rs y be the CP of each bottle.
SP of 16 bottles = CP of 17 bottles
$\Rightarrow 16x = 17y$
$\Rightarrow \frac{x}{y} = \frac{17}{16}$
Gain per bottle = SP − CP
$= \text{Rs}\ (x - y)$
$\therefore$ Gain percentage $= \left(\frac{\text{gain}}{\text{CP}} \times 100\right)\%$
$= \left(\frac{x-y}{y} \times 100\right)\%$
$= \left\{\left(\frac{x}{y} - 1\right) \times 100\right\}\%$
$= \left\{\left(\frac{17}{16} - 1\right) \times 100\right\}\%$
$= \left(\frac{1}{16} \times 100\right)\%$
$= 6\frac{1}{4}\%$

Q9.

Answer :

Let Rs x be the CP of one candle and Rs. y be the SP of one candle.
Now, CP of 12 candles = SP of 15 candles

$$\Rightarrow 12x = 15y$$
$$\Rightarrow \frac{y}{x} = \frac{12}{15}$$
$$\text{Loss} = \text{CP} - \text{SP}$$
$$= \text{Rs}\ (x - y)$$
$$\therefore \text{Loss percentage} = \left(\frac{\text{loss}}{\text{CP}} \times 100\right)\%$$
$$= \left\{\left(\frac{x-y}{x}\right) \times 100\right\}\%$$
$$= \left\{\left(1 - \frac{y}{x}\right) \times 100\right\}\%$$
$$= \left\{\left(1 - \frac{12}{15}\right) \times 100\right\}\%$$
$$= \left(\frac{3}{15} \times 100\right)\%$$
$$= 20\%$$

Q10.

Answer :

Let Rs x be the SP of one cassette.
SP of 5 cassettes $=$ Rs. $5x$
SP of 125 cassettes $=$ Rs. $125x$
Gain $=$ Rs. $5x$, when SP $=$ Rs. $125x$
But gain $=$ SP $-$ CP
$\Rightarrow$ CP $=$ SP $-$ gain
$= 125x - 5x$
$=$ Rs. $120x$
$\therefore$ Gain percentage $= \left(\frac{\text{gain}}{\text{CP}} \times 100\right)\%$
$= \left(\frac{5x}{120x} \times 100\right)\%$
$= 4\frac{1}{6}\%$

Q11.

Answer :

Let Rs x be the SP of one lemon.
SP of 45 lemons $=$ Rs. $45x$
Loss $=$ SP of 3 lemons $=$ Rs. $3x$
But loss $=$ CP $-$ SP
CP $=$ loss $+$ SP
$= 3x + 45x$
$=$ Rs. $48x$
$\therefore$ Loss percentage $= \left(\frac{\text{loss}}{\text{CP}} \times 100\right)\%$
$= \left(\frac{3x}{48x} \times 100\right)\%$
$= 6\frac{1}{4}\%$

Q12.

Answer :

CP of 6 oranges $=$ Rs. 10
CP of 1 orange $= \frac{10}{6} =$ Rs. $\frac{5}{3}$
SP of 4 oranges $=$ Rs. 9

$\text{SP of } 1 \text{ orange} = \text{Rs. } \frac{9}{4}$

Since SP > CP, there is a gain.

Now, gain = SP − CP

$= \frac{9}{4} - \frac{5}{3}$

$= \text{Rs. } \frac{7}{12}$

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

$= \left(\frac{\frac{7}{12}}{\frac{5}{3}} \times 100\right)\%$

$= \left(\frac{7}{12} \times \frac{3}{5} \times 100\right)\%$

$= \left(\frac{7}{4} \times 20\right)\%$

$= 35\%$

Q13.

Answer :

$\text{SP of } 10 \text{ bananas} = \text{Rs. } 18$

$\text{SP of } 1 \text{ banana} = \frac{18}{10} = \text{Rs. } \frac{9}{5}$

$\text{CP of } 12 \text{ bananas} = \text{Rs. } 16$

$\text{CP of } 1 \text{ banana} = \text{Rs } \frac{16}{12} = \text{Rs. } \frac{4}{3}$

Since SP > CP, there is a gain.

Now, gain = SP − CP

$= \frac{9}{5} - \frac{4}{3}$

$= \text{Rs. } \frac{7}{15}$

$\therefore \text{ Gain percentage} = \left(\frac{\frac{7}{15}}{\frac{4}{3}} \times 100\right)\%$

$= \left(\frac{7}{15} \times \frac{3}{4} \times 100\right)\%$

$= 35\%$

Q14.

Answer :

CP of 10 apples = Rs. 25
SP of 12 apples = Rs. 25
SP of 10 apples = Rs $\frac{25}{12} \times 10$ = Rs. $\frac{125}{6}$
Since SP < CP, there is a loss.
Now, loss = CP − SP
= Rs $25 - \frac{125}{6}$
= Rs. $\frac{25}{6}$

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

$= \left(\frac{\frac{25}{6}}{25} \times 100\right)\%$

$= 16.67\%$

Q15.

Answer :

Let x be number of eggs he purchased.
CP of 3 eggs = Rs. 5
CP of x eggs = Rs. $\frac{5}{3}x$
SP of 5 eggs = 12
SP of x eggs $= \frac{12}{5}x$
$\therefore$ Gain = SP − CP
$= \frac{12}{5}x - \frac{5}{3}x$
= Rs. $\frac{11}{15}x$
Now, $\frac{11}{15}x = 143$
$\Rightarrow x = 143 \div \frac{11}{15}$
$\Rightarrow \mathrm{x} = 143 \times \frac{15}{11} \Rightarrow \mathrm{x} = 195$

Q16.

Answer :

SP of the camera = Rs. 1080
Let Rs x be the CP.

$$\text{Gain} = \text{Rs. } \tfrac{1}{8}x \quad \ldots(\text{i})$$

$$\text{Also, gain} = \text{SP} - \text{CP}$$

$$= \text{Rs. } (1080 - x) \quad \ldots(\text{ii})$$

From (i) and (ii), we have :

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