Profit and Loss
Exercise 11B

Q1

Answer :

(b) 25%

CP of the book = Rs. 80
SP of the book = Rs. 100
Gain = SP - CP = Rs. (100 - 80) = Rs. 20

$$\text{Gain}\% = \left(\frac{\text{Gain}}{\text{CP}} \times 100\right)\%$$
$$= \left(\frac{20}{80} \times 100\right)\%$$
$$= 25\%$$

Q2

Answer :

(a) $12\frac{1}{2}\%$

CP of a football = Rs. 120
SP of a football = Rs. 105

CP>SP
∴ Loss = CP - SP = Rs. (120 - 105) = Rs. 15

$$\text{Loss}\% = \left(\frac{\text{Loss}}{\text{CP}} \times 100\right)\%$$
$$= \left(\frac{15}{120} \times 100\right)\%$$
$$= \frac{25}{2}\%$$
$$= 12\frac{1}{2}\%$$

Q3

Answer :

(b) 25%

SP of the bat = Rs. 100
Gain = Rs. 20

Gain = SP - CP
⇒ 20 = 100 - CP
⇒ CP = 100 - 20 = Rs. 80

$$\text{Gain}\% = \left(\frac{\text{Gain}}{\text{CP}} \times 100\right)\%$$
$$= \left(\frac{20}{80} \times 100\right)\%$$
$$= 25\%$$

Q4

Answer :

(a) Rs. 180

SP of the racket = Rs. 198
Gain% = 10

$$\text{CP of the racket} = \left\{\frac{100}{(100 + \text{Gain}\%)} \times 100\right\}$$
$$= \left\{\frac{100}{(100 + 10)} \times 198\right\}$$
$$= \frac{100}{110} \times 198$$
$$= \text{Rs. } 180$$

Q5

Answer :

Let the cost price be Rs. x.
Loss = $\text{Rs. } \frac{x}{7}$
$\therefore$ SP = $\left(x - \frac{x}{7}\right) = \text{Rs. } \frac{6}{7}x$

Given:
SP = Rs. 144

$\therefore \frac{6}{7}x = 144$
$\Rightarrow x = \frac{144 \times 7}{6} = \text{Rs. } 168$

$\therefore$ CP = Rs. 168
SP = Rs. 144

New SP = Rs. 189
Gain = SP - CP = $\text{Rs. } (189 - 168) = \text{Rs. } 21$

$$\text{Gain}\% = \left(\frac{\text{Gain}}{\text{CP}} \times 100\right)\%$$
$$= \left(\frac{21}{168} \times 100\right)\%$$
$$= 12.5\%$$

The correct answer is 12.5%.
All the given options are wrong.

Q6

Answer :

(d) Rs. 72

SP of the pen = Rs. 48
Loses = 20%

Then , $\mathbf{CP} = \left\{\frac{100}{(100 - \textbf{Loss \%})} \times \mathbf{SP}\right\}$

$= \left\{\frac{100}{(100 - 20)} \times 48\right\}$

$= \mathbf{Rs.}\ 60$

In order to gain 20%:

$\mathbf{SP} = \left\{\frac{(100 + \textbf{Gain \%})}{100} \times \mathbf{CP}\right\}$

$= \left\{\frac{(100 + 20)}{100} \times 60\right\}$

$= \frac{120}{100} \times 60$

$= \mathbf{Rs.}\ 72$

Q7

Answer :

(a) 20%

Let the cost price of each pencil be Rs.1
Cost of 15 pencils = Rs 15
SP of 15 pencil = CP of 12 pencil = Rs 12
∴ CP = Rs 15
SP = Rs 12

Loss = CP - SP = $\mathbf{Rs}\ (15 - 12) = \mathbf{Rs}\ 3$

$\mathbf{Loss\%} = \left(\frac{\textbf{Loss}}{\textbf{CP}} \times 100\right)\%$

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

$= \frac{300}{15}\ \%$

$= 20\%$

Q8

Answer :

(d) $33\frac{1}{3}\%$

Let the cost price of each toffee be Rs. 1
Cost price of three toffees = Rs 3
SP of three toffees = CP of four toffees = Rs 4

CP = Rs 3
SP = Rs 4

Gain = SP - CP = $\mathbf{Rs}\ (4 - 3) = \mathbf{Re}\ 1$

$\boldsymbol{Gain\%} = \left(\frac{\boldsymbol{Gain}}{\boldsymbol{CP}} \times 100\right)\%$

$= \left(\frac{1}{3} \times 100\right)\%$

$= \frac{100}{3}\ \%$

$= 33\frac{1}{3}\%$

Q9

Answer :

(c) Rs. 176

SP of an article = Rs. 144
Loss% = 10

$$CP = \left\{\frac{100}{(100 - \text{Loss }\%)} \times SP\right\}$$
$$= \left\{\frac{100}{(100 - 10)} \times 144\right\}$$
$$= \frac{100}{90} \times 144$$
$$= \frac{1440}{9}$$
$$= \text{Rs. } 160$$

In order to gain 10%:

$$S.P. = \frac{(100 + \text{ Gain }\%)}{100} \times CP$$
$$= \frac{(100 + 10)}{100} \times 160$$
$$= \frac{110}{100} \times 160$$
$$= \text{Rs. } 176$$

Q10

Answer :

(a) 50%

CP of six lemons = Re 1
CP of one lemon = $\text{Rs } \frac{1}{6}$

CP of four lemon = $\text{Rs } \frac{4}{6}$
SP of four lemon = Re 1

Gain = $1 - \frac{4}{6} = \frac{2}{6} = \text{Rs } \frac{1}{3}$

$$\text{Gain}\% = \left(\frac{\text{Gain}}{CP} \times 100\right)$$
$$= \left(\frac{3}{2 \times 3} \times 100\right)$$
$$= \frac{100}{2}$$
$$= 50$$

Q11

Answer :

(d)Rs. 600

SP of the chair = Rs 720
Gain% = 20

$$C.P. = \left\{\frac{100}{(100 + \text{ Profit percentage})} \times S.P.\right\}$$
$$= \left\{\frac{100}{120} \times 720\right\}$$
$$= \frac{7200}{12}$$
$$= \text{Rs. } 600$$

Q12

Answer :

(c) Rs. 700

SP of a stool = Rs 630
Loss% = 10

$$CP = \left\{\frac{100}{(100 - L\text{oss }\%)} \times SP\right\}$$
$$= \left\{\frac{100}{(100 - 10)} \times 630\right\}$$
$$= \frac{100}{90} \times 630$$
$$= \text{Rs } 700$$