Question:1

Given the following values, find the unknown values:

i C.P. = Rs 1200, S.P. = Rs 1350, Profit/Loss = ?

ii C.P. = Rs 980, S.P. = Rs 940, Profit/Loss = ?

iii C.P. = Rs 720, S.P. = ?, Profit = Rs 55.50

iv C.P. = ? S.P. = Rs 1254, Loss = Rs 32

Solution:

i CP = Rs.. 1200, SP = Rs.. 1350

CP < SP. So, profit.

Profit = Rs. $1350 - 1200$ = Rs. 150

ii CP = Rs. 980, SP = Rs. 940

CP > SP. So, loss.

Loss = Rs. $980 - 940$ = Rs. 40

iii CP = Rs. 720, SP = ?, profit = Rs. 55.50

Profit = SP - CP

⇒ Rs. 55.50 = SP - Rs. 720

⇒ SP = Rs. $55.50 + 720$ = Rs. 775.50

iv CP = ?, SP = Rs. 1254, loss = Rs. 32

⇒ Loss = CP - SP

⇒ Rs. 32 = CP - Rs. 1254

⇒ CP = Rs. $1254 + 32$ = Rs. 1286

Question:2

Fill in the blanks in each of the following:

i C.P. = Rs 1265, S.P. = Rs 1253, Loss = Rs .....

ii C.P. = Rs ...., S.P. = Rs 450, Profit = Rs 150

iii C.P. = Rs 3355, S.P. = Rs 7355, ... = Rs ....

iv C.P. = Rs ...., S.P. = Rs 2390, Loss = Rs 5.50

Solution:

i CP = Rs. 1265, SP = Rs. 1253

Loss = CP - SP = Rs. $1265 - 1253$ = Rs. 12

ii CP = ?, SP = Rs. 450, profit = Rs. 150

Profit = SP - CP

⇒ Rs. 150 = Rs. 450 - CP

⇒ CP = Rs. $450 - 150$ = Rs. 300

iii CP = Rs. 3355, SP = Rs. 7355,

Here SP > CP, so profit.

Profit = SP - CP

⇒ Profit = Rs. $7355 - 3355$ = Rs. 4000

iv CP = ?, SP = Rs. 2390, loss = Rs. 5.50

Loss = CP - SP

⇒ Rs. 5.50 = CP - Rs. 2390

⇒ CP = Rs. $5.50 + 2390$ = Rs. 2395.50

Question:3

Calculate the profit or loss and profit or loss per cent in each of the following cases:

i C.P. = Rs 4560, S.P. = Rs 5000

ii C.P. = Rs 2600, S.P. = Rs 2470

iii C.P. = Rs 332, S.P. = Rs 350

iv C.P. = Rs 1500, S.P. = Rs 1500

Solution:

i CP = Rs. 4560, SP = Rs. 5000

Here, SP > CP. So, profit.

Profit = SP - CP = Rs. $5000 - 4560$ = Rs. 440

Profit % = $\{Profit/CP \times 100\}$% = $\{440/4560 \times 100\}$% = {0.0965 × 100}% = 9.65%

ii CP = Rs. 2600, SP = Rs. 2470. Here, CP > SP. So, loss.
Loss = CP - SP = Rs. $2600 - 2470$= Rs. 130
Profit% = $\{Profit/CP \times 100\}\%$ = $\{130/2600 \times 100\}\%$ = {0.05 × 100}% = 5%

iii CP = Rs. 332, SP= Rs. 350. Here, SP > CP. So, profit.
Profit = SP - CP = Rs. $350 - 332$= Rs. 18
Profit% = $\{Profit/CP \times 100\}\%$ = $\{18/332 \times 100\}\%$ = {0.054 × 100}% = 5.4%

iv CP = Rs. 1500, SP = Rs. 1500
SP = CP. So, neither profit nor loss.

Question:4
Find the gain or loss per cent, when:
i C.P. = Rs 4000 and gain = Rs 40.
ii S.P. = Rs 1272 and loss = Rs 328
iii S.P. = Rs 1820 and gain = Rs 420.
Solution:
i CP = Rs. 4000, gain = Rs. 40
Gain % = $\{Gain/CP \times 100\}\%$ = $\{40/4000 \times 100\}\%$ = 0.01×100% = 1%

ii SP = Rs. 1272, loss = Rs. 328
Loss = CP - SP
Hence, CP = Loss+ SP = Rs. 328 + Rs. 1272 = Rs. 1600
Loss % = $\{Loss/CP \times 100\}\%$ = $\{328/1600 \times 100\}\%$ = 20.5%

iii SP = Rs. 1820, gain = Rs. 420
Gain = SP - CP
CP = 1820 - 420 = Rs. 1400
Gain % = $\{Gain/CP \times 100\}\%$ = $\{420/1400 \times 100\}$% = 30%

Question:5
Find the gain or loss per cent, when:
i C.P. = Rs 2300, Overhead expenses = Rs 300 and gain = Rs 260.
ii C.P. = Rs 3500, Overhead expenses = Rs 150 and loss = Rs 146
Solution:
i CP = Rs. 2300, overhead expenses = Rs. 300, gain = Rs. 260
Gain % = $\{Gain/(CP + overheadexpenses\}$ × 100 = {260/ 2300 + 300} × 100 = {260/2600} × 100 = 10%
(ii CP = Rs. 3500, overhead expenses = Rs. 150, loss = Rs. 146

Loss % = $\{Loss/(CP + overheadexpenses\}$ × 100 = {146/3500 + 150} × 100
= {146/3650} × 100
= 14600/3650 = 4%

Question:6
A grain merchant sold 600 quintals of rice at a profit of 7%. If a quintal of rice cost him Rs 250 and his total overhead charges for transportation, etc. were Rs 1000 find his total profit and the selling price of 600 quintals of rice.
Solution:
Cost of 1 quintal of rice = Rs. 250
Cost of 600 quintals of rice = 600 × 250 = Rs. 150000
Overhead expenses = Rs. 1000
Total CP = Rs. $150000 + 1000$= Rs. 151000
Profit % = $Profit/CP$ × 100
7 = $P/151000$× 100
P = 1510 × 7 = Rs. 10570
Profit = Rs. 10570
SP = CP + profit = Rs. $151000 + 10570$= Rs. 161570

Question:7

Naresh bought 4 dozen pencils at Rs 10.80 a dozen and sold them for 80 paise each. Find his gain or loss percent.

Solution:

Cost of 1 dozen pencils = Rs. 10.80

Cost of 4 dozen pencils = 4 × 10.80 = Rs. 43.2

Selling price of each pencil = 80 paise

Total number of pencils = 12 × 4 = 48

SP of 48 pencils = 48 × 80 paise = 3840 paise = Rs. 38.40

Here, SP < CP.

Loss = CP - SP = Rs. $43.2 - 38.4$ = Rs. 4.8

Loss % = $Loss/CP$ × 100 = $4.8/43.2$ × 100 = 480/43.2 = 11.11%

Question:8

A vendor buys oranges at Rs 26 per dozen and sells them at 5 for Rs 13. Find his gain per cent.

Solution:

CP of 1 dozen oranges = Rs. 26

CP of 1 orange = 26/12 = Rs. 2.16

CP of 5 oranges = 2.16 × 5 = Rs. 10.8

Now, SP of 5 oranges = Rs. 13

Gain = SP - CP = Rs. $13 - 10.8$ = Rs. 2.2

Gain % = $Gain/CP$ × 100 = $2.2/10.8$ × 100 = 20.3%

Question:9

Mr Virmani purchased a house for Rs 365000 and spent Rs 135000 on its repairs. If he sold it for Rs 550000, find his gain percent.

Solution:

Amount Mr. Virmani paid to purchase the house = Rs. 365000

Amount he spent on repair = Rs. 135000

Total amount he spent on the house CP = Rs. $365000 + 135000$ = Rs. 500000

SP of the house = Rs. 550000

Gain = SP - CP = Rs. $550000 - 500000$ = Rs. 50000

Gain % = $Gain/CP$ × 100 = $50000/500000$ × 100 = 5000000/500000 = 10%

Question:10

Shikha purchased a wrist watch for Rs 840 and sold it to her friend Vidhi for Rs 910. Find her gain percent.

Solution:

The cost price of the wristwatch that Shikha purchased, CP = Rs. 840

The price at which she sold it, SP = Rs. 910

Gain = SP - CP

$= 910 - 840$ = Rs. 70

Gain % = $Gain/CP$ × 100 = $70/840$ × 100 = 7000/840 = 8.3%

Question:11

A business man makes a 10% profit by selling a toy costing him Rs 120. What is the selling price?

Solution:

CP = Rs. 12

Profit % = 10

We now that

SP = $\{100 + profit/100\}$ × CP

$= \{100 + 10/100\}$ × 120

$= \{110/100\}$ × 120 = 1.1 × 120 = Rs. 132

Question:12

Harish purchased 50 dozen bananas for Rs 135. Five dozen bananas could not be sold because they were rotten. At what price per dozen should Harish sell

the remaining bananas so that he makes a profit of 20%?

Solution:

Cost price of 50 dozens bananas that Harish purchased, CP = Rs. 135

Bananas left after removing 5 dozen rotten bananas = 45 dozens

Effective CP of one dozen bananas = Rs. 135/45 = Rs. 3

Calculating the price at which Harish should sell each dozen bananas to make a profit of 20% $or 1/5$, we get

Profit = Gain/CP = $SP - CP$/CP

$\frac{1}{5} = \frac{\text{SP} - 3}{3} \text{SP} = \text{Rs. } 3.60$

Harish should sell the bananas at Rs. 3.60 a dozen in order to make a profit of 20%.

Question:13

A woman bought 50 dozen eggs at Rs 6.40 a dozen. Out of these 20 eggs were found to be broken. She sold the remaining eggs at 55 paise per egg. Find her gain or loss percent.

Solution:

Cost of one dozen eggs = Rs. 6.40

Cost of 50 dozen eggs = 50 × 6.40 = Rs. 320

Total number of eggs = 50 × 12 = 600

Number of eggs left after removing the broken ones = 600 - 20 = 580

SP of 1 egg = 55 paise

So, SP of 580 eggs = 580 × 55 = 31900 paise = Rs. 31900/100 = Rs. 319

Loss = CP - SP = Rs. $320 - 319$ = Re. 1

Loss % = $Loss/CP$ × 100 = $1/320$ × 100 = 0.31%

Question:14

Jyotsana bought 400 eggs at Rs 8.40 a dozen. At what price per hundred must she sell them so as to earn a profit of 15%?

Solution:

Cost of eggs per dozen = Rs. 8.40

Cost of 1 egg = 8.40/12 = Rs. 0.7

Cost of 400 eggs = 400 × 0.7 = Rs. 280

Calculating the price at which Jyotsana should sell the eggs to earn a profit of 15%, we get

15% of 280 + 280

= $\{15/100$ × 280} + 280 = {4200/100} + 280 = 42 + 280 = Rs. 322

So, Jyotsana must sell the 400 eggs for Rs. 322 in order to earn a profit of 15%.

Therefore, the SP per one hundred eggs = Rs. 322/4 = Rs. 80.50.

Question:15

A shopkeeper makes a profit of 15% by selling a book for Rs 230. What is the C.P. and the actual profit?

Solution:

Given that the SP of a book = Rs. 230

Profit % = 15

Since

CP = $SP \times 100 \div 100 + profit$

CP = $230 \times 100 \div 100 + 15$

CP = 23000 ÷ 115 = Rs. 200

Also,

Profit = SP - CP = Rs. $230 - 200$ = Rs. 30

Actual profit = Rs. 30

Question:16

A bookseller sells all his books at a profit of 10%. If he buys a book from the distributor at Rs 200, how much does he sell it for?

Solution:

Given

Profit % = 10%

CP = Rs. 200
Since
SP = {$100 + profit$/100} × CP
= {$100 + 10$/100} × 200
= {110/100} × 200
= Rs. 220

The bookseller sells the book for Rs. 220.

Question:17
A flowerist buys 100 dozen roses at Rs 2 a dozen. By the time the flowers are delivered, 20 dozen roses are multilated and are thrown away. At what price should he sell the rest if he needs to make a 20% profit on his purchase?
Solution:
Cost of 1 dozen roses = Rs. 2
Number of roses bought by the florist = 100 dozens
Thus, cost price of 100 dozen roses = 2 × 100 = Rs. 200

Roses left after discarding the mutilated ones = 80 dozens

Calculating the price at which the florist should sell the 80 dozen roses in order to make a profit of 20%, we have

$\frac{\text{Profit }\%}{100} = \frac{\text{SP}-\text{CP}}{\text{CP}} \frac{20}{100} = \frac{\text{SP}-200}{200} \text{SP} = \text{Rs. } 240$

Therefore, the SP of the roses should be Rs. 240/80 = Rs. 3 per dozen.

Question:18
By selling an article for Rs 240, a man makes a profit of 20%. What is his C.P.? What would his profit percent be if he sold the article for Rs 275?
Solution:
Let CP = Rs. x
SP = Rs. 240
Let profit be Rs. P.

Now, profit % = 20%
Since
Profit % = $Profit/CP$ × 100
⇒ 20 = (P/*x*) × 100
⇒ P = 20*x*/100 = *x*/5

Profit = SP - CP = 240 - x
⇒ P = 240 - *x*
⇒ *x*/5 = 240 - *x*
⇒ 240 = *x* + *x*/5
⇒ 240 = 6*x*/5
⇒ *x* = 1200/6 = 200
So, CP = Rs. 200

New SP = Rs. 275 and CP = Rs. 200
Profit % = {$SP - CP$/CP} × 100 = {$275 - 200$/200} × 100 = $75/200$× 100
= 7500/200 = 37.5%

Question:19
If CP = 200 and SP = 250, then the profit or loss is equal to

a 50 loss
b 50 profit
c 25 profit
d 25 loss
Solution:
Since, SP is more than CP.

Therefore, profit = SP – CP
= 250 – 200

= 50

Hence, the correct option is b.

Question:20

If CP = 120 and SP = 80, then profit or loss is equal to

a 40 loss
b 60 loss
c 40 profit
d 60 profit

Solution:

Since, CP is more than SP.

Therefore, loss = CP – SP
= 120 – 80
= 40

Hence, the correct option is a.

Question:21

A trader purchased a bicycle for 2500 and sold at 2700. His profit percentage is

a 8%
b 10%
c 6%
d 4%

Solution:

CP = 2500
SP = 2700

Since, SP is more than CP.

Therefore, Profit = SP – CP
= 2700 – 2500
= 200

$\text{Profit Percent} = \frac{\text{Profit}}{\text{CP}} \times 100 \quad = \frac{200}{2500} \times 100 \quad = 8\%$

Hence, the correct option is a.

Question:22

If CP = 950 and gain 6%, then SP =

a 1100
b 1117
c 1107
d 1170

Disclaimer: There is a misprint in the options. Option c must be equal to 1007.

Solution:

Let the SP be *x*.

CP = 950
Gain = 6%

Therfore, SP is more than CP.

Now,
$\text{Gain} = 6\% \text{ of CP} \quad = \frac{6}{100} \times 950 \quad = 3 \times 19 \quad = 57$

Thus, SP = CP + gain

= 950 + 57
= 1007

Hence, the correct option is c.

Question:23
If SP = 924 and gain = 10%, then CP =

a 480
b 804
c 408
d 840

Disclaimer: There is a misprint in the question. CP should be ask instead of SP.
Solution:
Let the CP be *x*.

SP = 924
Gain = 10%

Therfore, SP is more than CP.

Now,
$\text{Gain} = 10\% \text{ of } \text{CP}$ and SP = CP + gain

$\text{So, } \text{SP} = \text{CP} + 10\% \text{ of } \text{CP} \Rightarrow 924 = x + \frac{10}{100} \times x \Rightarrow 924 = \left(1 + \frac{1}{10}\right)x \Rightarrow 924 = \frac{11}{10}x \Rightarrow x = 924 \times \frac{10}{11} \Rightarrow x = 840$

Thus, CP = 840

Hence, the correct option is d.

Question:24
On selling a pen for 100, a shopkeeper gains 15. The cost price of the pen is

a 115
b 85
c 70
d 130
Solution:
Let the CP be *x*.

SP = 100
Profit = 15

Therfore, SP is more than CP.

Now,
CP = SP – Profit
= 100 – 15
= 85

Thus, CP = 85

Hence, the correct option is b.

Question:25
On selling a plastic chair for 630, a man loses 10%, the cost price of the chair is

a 567
b 693
c 700
d 730

Solution:
Let the CP be *x*.

SP = 630
Loss = 10%

Therfore, CP is more than SP.

Now,
$\text{Loss} = 10\%\ \text{of}\ \text{CP}$ and SP = CP – loss

$\text{So, SP} = \text{CP} - 10\%\ \text{of CP} \Rightarrow 630 = x - \frac{10}{100} \times x \Rightarrow 630 = \left(1 - \frac{1}{10}\right)x \Rightarrow 630 = \frac{9}{10}x \Rightarrow x = 630 \times \frac{10}{9} \Rightarrow x = 700$

Thus, CP = 700

Hence, the correct option is c.

Question:26
The CP of a chair is 3300. If it is sold at a loss of 10%, then SP is

a 3000
b 3070
c 2790
d 2970
Solution:
Let the SP be *x*.

CP = 3300
Loss = 10%

Therfore, CP is more than SP.

Now,
$\text{Loss} = 10\%\ \text{of}\ \text{CP}$ and SP = CP – loss

$\text{So, SP} = \text{CP} - 10\%\ \text{of CP} \Rightarrow x = 3300 - \frac{10}{100} \times 3300 \Rightarrow x = 3300 - 330 \Rightarrow x = 2970$

Thus, SP = 2970

Hence, the correct option is d.

Question:27
If the cost price of 15 pens is equal to the selling price of 20 pens, then the loss percent is

a 25%
b 20%
c 15%
d 10%
Solution:
Let the cost price of one pen be 1.
Then, CP of 20 pens = 20
and SP of 20 pens = 15 $\because SPof20pens = CPof15pens$

Therefore, CP is more than SP.

So, Loss = CP – SP
= 20 – 15
= 5

$\text{Loss percent} = \frac{\text{Loss}}{\text{CP}} \times 100 \quad = \frac{5}{20} \times 100 \quad = 25\%$

Hence, the correct option is a.

Question:28

A vendor bought lemons at 6 for a rupee and sold them at 4 for a rupee. His gain % is

a 50%
b 40%
c $33\frac{1}{3}\%$
d $16\frac{2}{3}\%$

Solution:

Let the total lemons be 12.

CP of 6 lemons = 1
then, CP of 12 lemons = 2

Also, SP of 4 lemons = 1
then, SP of 12 lemons = 3

Therefore, SP is more than CP.

So, Gain = SP – CP
= 3 – 2
= 1

$\text{Gain percent} = \frac{\text{Gain}}{\text{CP}} \times 100 \quad = \frac{1}{2} \times 100 \quad = 50\%$

Hence, the correct option is a.

Question:29

On selling a pen for 48, a shopkeeper loses 20%. In order to gain 20% what should be the selling price?

a 52
b 56
c 68
d 72

Solution:

Let the CP of a pen be *x*.

SP of a pen = 48
Loss = 20%

Therefore, CP is more than SP.

Now, Loss = CP – SP and Loss = Loss percent × CP

$\text{Thus, CP} - \text{SP} = \text{Loss percent} \times \text{CP} \Rightarrow x - 48 = \frac{20}{100} \times x \Rightarrow 100x - 4800 = 20x \Rightarrow 100x - 20x = 4800 \Rightarrow 80x = 4800 \Rightarrow x = \frac{4800}{80} \Rightarrow x = 60$

Therefore, CP of the pen = 60

Now, in order to gain 20%, let the new SP be *y*.

Gain = Gain percent × CP
= $\frac{20}{100} \times 60$
= 12

SP = CP + Gain
= 60 + 12
= 72

Hence, the correct option is d.

Question:30

On selling an article for 144 a man loses 10%. At what price should he sell it to gain 10% ?

a 158.40
b 172.80
c 176
d 192
Solution:
Let the CP of an article be *x*.

SP of the article = 144
Loss = 10%

Therefore, CP is more than SP.

Now, Loss = CP – SP and Loss = Loss percent × CP

$\text{Thus, CP} - \text{SP} = \text{Loss percent} \times \text{CP} \Rightarrow x - 144 = \frac{10}{100} \times x \Rightarrow x - 144 = \frac{1}{10} \times x \Rightarrow 10x - 1440 = x \Rightarrow 10x - x = 1440 \Rightarrow 9x = 1440 \Rightarrow x = \frac{1440}{9} \Rightarrow x = 160$

Therefore, CP of the article = 160

Now, in order to gain 10%, let the new SP be *y*.

Gain = Gain percent × CP
= $\frac{10}{100} \times 160$
= 16

SP = CP + Gain
= 160 + 16
= 176

Hence, the correct option is c.

Question:31
If the cost price of 15 pens is equal to the selling price of 20 pens, then the loss percent is

a 25%
b 20%
c 15%
d 18%
Solution:
Let the cost price of one pen be 1.
Then, CP of 20 pens = 20
and SP of 20 pens = 15 $\because SPof20pens = CPof15pens$

Therfore, CP is more than SP.

So, Loss = CP – SP
= 20 – 15
= 5

$\text{Loss percent} = \frac{\text{Loss}}{\text{CP}} \times 100 \qquad = \frac{5}{20} \times 100 \qquad = 25\%$

Hence, the correct option is a.

Question:32
If the cost price of 6 pencils is equal to the selling price of 5 pencils, then the gain percent is

a 10%
b 20%
c 15%
d 25%
Solution:
Let the cost price of one pencil be 1.
Then, CP of 5 pencils = 5
and SP of 5 pencils = 6 $\because SPof5pencils = CPof6pencils$

Therfore, SP is more than CP.

So, Profit = SP – CP
= 6 – 5
= 1

$\text{Gain percent} = \frac{\text{Profit}}{\text{CP}} \times 100 \qquad = \frac{1}{5} \times 100 \qquad = 20\%$

Hence, the correct option is b.