H.W

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Profit, Loss and Discount

① If a merchant offers a discount of 30% on the list price, then she makes a loss of 16%. What % profit or loss will she make if she sells at a discount of 10% of the list price?

sol: Let MP = ₹ x

D = 30% of x

= ₹ $\frac{3}{10}$ x

SP = $\frac{100+30}{100}$ x x

= $\frac{130}{100}$ x x

= 1·3x

Loss = 16%

CP = $\frac{100}{100-16}$ x 1·3x

= $\frac{100}{84}$ x $\frac{13}{10}$ x

= $\frac{130}{84}$ x

Let MP = 100

SP = 100 - 30% of 100

= ₹ 70

Loss = 16%

CP = $\frac{100}{100-16}$ x 70

= $\frac{100}{84}$ x 70

= ₹ $\frac{250}{3}$

Now, SP = 70 - 10% of 70

= 70 - 7

= ₹ 63

Loss = $\frac{250}{3}$ - 63

= $\frac{250-189}{3}$ = 1

Loss% = $\frac{\frac{61}{3}}{\frac{250}{3}}$ x 100

Sol: Let MP = 100

D = 30%

SP = ₹70

Loss = 16%

$CP = \frac{100}{100-16} \times 70$

$= \frac{100}{84} \times 70$

$= \frac{250}{3}$ ₹83.33

Now, 10% Discount is given

∴ SP = ₹90

$\text{Profit\%} = \frac{90 - 83.33}{83.33} \times 100$

$= 8\%$

④ A real estate agent sells two sites for ₹18000 each. On one he gains 25% and on the other he loses 25%. What is his loss or gain %?

Sol: 1st profit case, SP = ₹18000

gain = 25%

$CP = \frac{100 \times 18000}{125}$

= ₹14000

2nd case = loss

SP = ₹18000

Loss = 25%

$CP = \frac{100}{75} \times 18000$

= ₹24000

Total CP = 24000 + 14000

= ₹36000

Total SP = 18000 × 2

= ₹36000

∴ There is no profit no loss

③ If a retailer marks up his price by 30% and then allows a 30% discount, what is his % profit or loss?

Sol: Let CP = ₹100

MP = ₹130 [100 + 30% of 100] ⇒ [100 + 30]

D = 30% on MP

SP = 130 − 30% of 130 [130 − $\frac{30}{100}$ × 130] ⇒ [130 − 39]

= ₹91

Loss % = $\frac{CP - SP}{CP}$ × 100 = $\frac{100 - 91}{100}$ × 100

= $\frac{9}{100}$ × 100

= 9 % [∴, Loss will be 9%]

④ Bharat purchased 90 bags of cement at ₹450 each. He sold 30 bags at 20% profit and 20 bags at 6% loss. At what rate per bag should the remainder be sold to gain a profit of 9% on whole transaction?

Sol: CP of 90 bags = ₹450

CP of 90 bags = 450 × 90

= ₹40500

Profit on whole = 9%

SP = $\frac{100 + 9}{100}$ × 40500

= 109 × 405

= ₹44145

CP of 30 bags = 450 × 30

= ₹13500

Profit on 30 bags = 20%

SP = $\frac{100 + 20}{100}$ × 13500

= 120 × 135

= ₹16200