16/10/20

Two partners A,B agree to divide 30% of total profit equally between them and the balance in the ratio 3:4.
If total profit is Rs.30,000 find A's share of profit

Total Profit = ₹30,000

$$30\% \text{ of Profit} = \frac{30}{100} \times 30,000$$

$$= 9000$$

$a : b \to T$

$\downarrow \quad \searrow \frac{b}{a+b} . T$

$\frac{a}{a+b} . T$

Balance of the profit = 30,000 − 9000
$$= 21,000$$

A's share in the balance of the profit $= \frac{3}{3+4}(21,000)$

$$= \frac{3}{7}(21,000)$$

$$= 9000$$

A's share of the profit $= \frac{9000}{2} + 9000$

$$= 4500 + 9000$$

$$= 13500$$

If the angles of a triangle are in the ratio 3:8:9, then their respective degree measures are_____
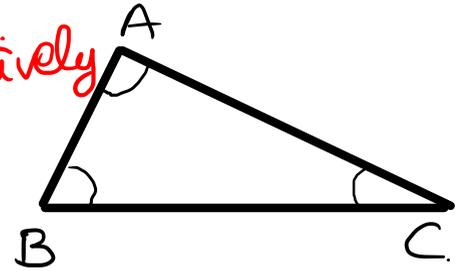
Let the angles be $3x, 8x$ & $9x$ respectively

$$3x + 8x + 9x = 180°$$
$$20x = 180°$$
$$x = \frac{180°}{20}$$
$$= 9°$$

∴ The angles are $3(9), 8(9), 9(9)$

$$27, 72, 81$$

Pbm. If $p = \dfrac{q}{3} = \dfrac{r}{4}$, then $p : q : r$ is ____

Soln.

Let $p = \dfrac{q}{3} = \dfrac{r}{4} = k$ (say)

$\Rightarrow p = k$

$\Rightarrow \dfrac{q}{3} = k \Rightarrow q = 3k$

$\dfrac{r}{4} = k \Rightarrow r = 4k$

$p : q : r = k : 3k : 4k$

$\qquad = 1 : 3 : 4$

Profit and Loss.

The price at which an article is manufactured or purchased is called as cost price(CP) and at which it is sold is called as selling price (SP)

If sales is more than the cost the difference between SP and CP is Profit (P)
If Sales is less than the cost then difference between CP and SP is Loss (L)

i.e., Profit=SP-CP, SP>CP
    Loss=CP-SP, CP>SP

$$\text{Profit \%} = \frac{P}{CP} \times 100$$

$$\text{Loss \%} = \frac{L}{CP} \times 100$$

Profit% and Loss% are calculated on Cost Price.

If SP=CP, then there is no profit ,no loss and this case is called as BREAK - EVEN POINT

A TV was bought by Mr.X for Rs.5600and after 6 months he sold it for Rs.5000. Find his percentage loss

CP = ₹ 5600

SP = ₹ 5000

Loss = CP − SP

= 5600 − 5000

= 600

Loss % = $\dfrac{\text{Loss}}{CP} \times 100$

= $\dfrac{600}{5600} \times 100$

= 10.71%

A trader bought 3 tables for Rs.800 each and sold them to 3 different customers for Rs.950, Rs.1000 and Rs.750 respectively. Find his total loss/profit and percentage loss/profit.

Cost Price $= 3 \times 800$

$\qquad = 2400$

Selling Price $= 950 + 1000 + 750$

$\qquad = 2700$

SP > CP

Profit $=$ SP $-$ CP

$\qquad = 2700 - 2400$

$\qquad = 300$

Profit % $= \dfrac{\text{Profit}}{\text{CP}} \times 100$

$\qquad = \dfrac{300}{2400} \times 100$

$\qquad = 12.5\%$

$$S.P. = \frac{100 + \text{Profit} \%}{100} \times \text{Cost Price}$$

$$\text{Selling Price} = \frac{100 - \text{Loss} \%}{100} \times C.P.$$

Note:

Loss is negative profit.

Mr. X sold a computer at Rs.16500 with 20% profit. Find cost price of the computer.

$SP = 16500$

$P\% = 20\%$

$CP = ?$

$$\frac{100 + P\%}{100} \; CP = SP$$

$$\frac{100 + 20}{100} \; CP = 16500$$

$$\frac{120}{100} \; CP = 16500$$

$$CP = \frac{16500 \times 100}{120} = 13750$$

$CP = ₹ 13,750$

Mr.X bought a car at Rs. 2,20,000 and after 2 years he sold it with 15%loss. What was the selling price of the car?

$CP = ₹ \, 2,20,000$

$Loss \% = 15 \%$

$SP = ?$

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

$$= \frac{100 - 15}{100} \times 2,20,000$$

$$= \frac{85}{100} \times 2,20,000 = 1,87,000$$

$SP = ₹ \, 1,87,000$

A printer is sold by a shopkeeper for Rs.6000 by making a profit of 20%. What would be his percentage profit/loss if he would have sold it for Rs.5000?

I :

$SP = 6000$

$P\% = 20\%$

$$\frac{100 + P\%}{100} CP = SP$$

$$\frac{100 + 20}{100} CP = 6000$$

$$\frac{120}{100} CP = 6000$$

$$CP = \frac{\overset{50}{\cancel{6000}} \times 100}{\cancel{120}}$$

$$= 5000$$

II :

$SP = 5000$

$P\%/L\% = ?$

$SP = CP$

$\therefore$ No Profit, no loss.

H.W.

Mr.X sold his old scooter with 18% profit at Rs18000. What would be the percent profit/loss if he would have sold it for Rs.16000

By selling CD's at Rs.120 each a trader made 10% profit. What should be the selling price if he wants to earn 15% profit?

I

$SP = 120$
$P\% = 10\%$

$$\frac{100 + P\%}{100} \, CP = SP$$

$$\frac{100 + 10}{100} \times CP = 120$$

$$\frac{110}{100} \times CP = 120$$

$$CP = \frac{120 \times 100}{110}$$

$$= 109.09$$

II

$P = 15\%$
$SP = ?$

$$SP = \frac{100 + P\%}{100} \times CP$$
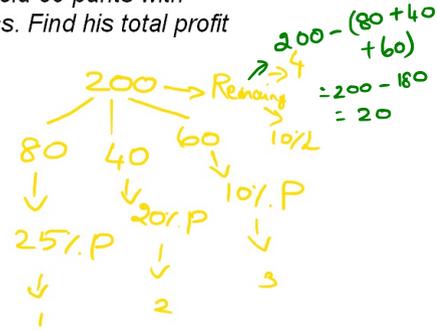
$$SP = \frac{100 + 15}{100} \times 109.09$$

$$= \frac{115}{100} \times 109.09$$

$$= 125.45$$

A shopkeeper had a stock of 200 jeans pants with total cost of Rs.50,000. He sold 80 pants with 25%profit, 40 with 20% profit, 60 with 10% profit and the remaining with 10% loss. Find his total profit and percentage profit.

Cost of 200 jeans pants = ₹50,000

Cost of 1 jeans pants = $\frac{50,000}{200}$

= ₹250

$$SP = \frac{100 + P\%}{100} \cdot CP$$

$$SP = \frac{100 - L\%}{100} \cdot CP$$

|		SP of 1 jeans	SP of all jeans
I	No. of jeans = 80, Profit % = 25%	$\frac{100+25}{100} \times 250 = 312.5$	$312.5 \times 80 = 25000$
II	No. of jeans = 40 Profit % = 20%	$\frac{100+20}{100} \times 250 = 300$	$300 \times 40 = 12000$
III	No. of jeans = 60, Profit = 10%	$\frac{100+10}{100} \times 250 = 275$	$275 \times 60 = 16500$
IV	No. of jeans = 20 Loss = 10%.	$\frac{100-10}{100} \times 250 = 225$	$225 \times 20 = 4500$
		Net SP =	58000

Profit = SP − CP = 58000 − 50000 = 8000

Profit % = $\frac{Profit}{CP} \times 100$ = $\frac{8000}{50000} \times 100 = 16\%$

200 → Remaining

200 − (80 + 40 + 60)
= 200 − 180
= 20

80   40   60   10% L

25% P   20% P   10% P

1   2   3

A shopkeeper had a stock of 300 designer sarees with total cost of Rs.6,00,000. He sold 1/3 rd of them at Rs.4000 each. He sold half of the remaining sarees at Rs. 3000 each and the remaing at Rs.2000 each. Find his total and percentage profit.

Cost of 300 designer sarees = ₹6,00,000

CP of 1 designer saree = $\dfrac{6,00,000}{300}$

$= 2000$
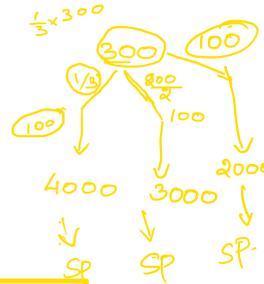
	No. of sarees.	SP
I.	$\dfrac{1}{3} \times 300 = 100$	$100 \times 4000 = 4000\,00$
II	$\dfrac{1}{2}$(Remaining) $= \dfrac{1}{2}(300-100)$ $= \dfrac{1}{2}(200) = 100$	$100 \times 3000 = 3000\,00$
III	Remaining $= 300 - (100+100)$ $= 300 - 200$ $= 100$	$100 \times 2000 = 2000\,00$
	Total	$9,00,000$

Profit $= SP - CP$
$\qquad = 9,00,000 - 6,00,000$
$\qquad = 3,00,000$

Profit % $= \dfrac{Profit}{CP} \times 100$

$\qquad = \dfrac{3,00,000}{6,00,000} \times 100$

$\qquad = 50\%.$

When a study table was sold at 22% profit, the carpenter received Rs.840 more than what he could have got when sold at 15% profit. Find cost price of the study table.

I   II.

22% P 15% Profit $SP = \dfrac{100 + P\%}{100} CP$.

Let x be the cost price and SP_1 & SP_2 be the selling prices if it is sold at 22% profit & 15% profit respectively.

Given that, $\boxed{SP_1 = SP_2 + 840}$ → (1)

$SP = \dfrac{100 + P\%}{100} CP$

$SP_1 = \dfrac{100 + 22}{100} x$

$= \dfrac{122}{100} x$

$= 1.22 x$

$SP_2 = \dfrac{100 + 15}{100} CP$

$= \dfrac{115}{100} x$

$= 1.15 x$

(1) ⟹ $1.22x = 1.15x + 840$

⟹ $1.22x - 1.15x = 840$

$0.07x = 840$

$x = \dfrac{840}{0.07}$

$= 12000$

Cost Price = ₹ 12,000

$SP_1 = \dfrac{122}{100} \times 12000$

$= 14640$

$SP_2 = \dfrac{115}{100} \times 12000$

$= 13800$

$\begin{array}{r} 14640 \\ 13800 \\ \hline 840 \\ \hline \end{array}$

When a dining table was sold at 10% profit, the carpenter got Rs.450 less than what he could have got when sold at 15% profit. Find cost price of the dining table

A manufacturer sold an article with 20% profit to a middleman who then sold it to a trader with 10% profit. Afterwards the trader sold it to a customer with 15% profit. If the difference between the amount at which the customer got the article and the manufacturing cost is Rs.12,950 find its manufacturing cost

$$\text{Manufacturer} \xrightarrow{20\% \, P} \text{Middleman} \xrightarrow{10\% \, P} \text{Trader} \xrightarrow{15\% \, P} \text{Customer}$$

12,950

Let x be the manufacturing cost. $SP = \dfrac{100 + P\%}{100} \, CP$

SP of Manufacturer $= \dfrac{100 + 20}{100} \, x$

$= \dfrac{120}{100} \, x$

$= 1.2 \, x = CP$ of the middle man

SP of middle man $= \dfrac{100 + 10}{100} \, CP$

$= \dfrac{110}{100} \times 1.2 x$

$= 1.1 \times 1.2 x$

$= 1.32 x = CP$ of the trader

SP of trader $= \dfrac{100 + 15}{100} \, CP$

$= \dfrac{115}{100} \times 1.32 x$

$= 1.518 x = CP$ of the customer

CP of customer $-$ Manufacturing cost $= ₹ 12,950$ (gn in Pbm)

$1.518 x - x = 12,950$

$0.518 x = 12950$

$x = \dfrac{12950}{0.518}$

$= 25,000$

The manufacturing cost $= ₹ 25,000$

A manufacturer sold an article with 12%profit to a trader and the trader sold it to a customer with 18% profit. If the difference between the amount at which the customer got the article and the manufacturing cost is Rs.4824, find cost price of the article for the manufacturer.