

Aptitude Question Bank

M-03-05

Profit & Loss, Percentage Assignment - 2

Submitted by : Satyajeet Viendee Khamkar

- ① Article sold at a loss of 25% & selling price is ₹ 450. Find C.P.

$$\rightarrow x \xrightarrow{-25} 450$$

$$\frac{75}{100} = \frac{450}{x} \quad \therefore \frac{3}{4} = \frac{450}{x}$$

$$3x = 1800$$

$$x = \underline{\underline{1800/3}} = \underline{\underline{600}}$$

- ② Bought an item for ₹ 1200 & sold it for ₹ 1440
Profit

$$\begin{array}{r} \rightarrow 1440 \\ - 1200 \\ \hline 240 \end{array} \quad \frac{1200}{100} = \frac{240}{x}$$

$$\begin{array}{r} 1200 = 240 \\ x = 240/12 \\ = \underline{\underline{20 \%}} \end{array}$$

- ③ S.P is ₹ 960 & C.P is ₹ 800 then Profit ?

$$\begin{array}{r} \rightarrow 960 \\ - 800 \\ \hline 160 \end{array} \quad \frac{800}{100} = \frac{160}{x}$$

$$8x = 160$$

$$x = 20 \%$$

① sells fan ₹ 1200 with loss of 20%
find C.P = ?

$$\rightarrow 2x \xrightarrow{-20\%} 1200$$

$$\frac{4x}{5} = \frac{1200}{2x} \quad \therefore 4x = 6000 \\ 2x = \underline{\underline{1500}}$$

② C.P. → ₹ 400 & sold for ₹ 480, find Profit

$$\rightarrow \frac{480}{400} = \frac{80}{2x} \\ 4x = 80 \\ 2x = \underline{\underline{20\%}}$$

③ Two successive discounts of 20% & 10%. Find net discount %.

$$\rightarrow 100 \xrightarrow{-20\%} 80 \xrightarrow{-10\%} 72 \quad \begin{array}{r} 0.8 \\ \times 100 \\ \hline - 72 \\ \hline 28\% \end{array}$$

④ Sold for ₹ 800 after giving a 20% discount. Find marked price

$$\rightarrow 2x \xrightarrow{-20\%} 800 \quad \frac{80}{5} = \frac{800}{2x} \quad 4x = 4000 \\ 2x = \underline{\underline{1000}}$$

⑤ Sold for ₹ 1800 with a 25% find C.P

$$\rightarrow C.P \xrightarrow{+25\%} 1800 \quad \frac{125}{100} = \frac{1800}{2x} \\ 5x = 7200 \quad x = \underline{\underline{1440}}$$

⑨ marks at ₹ 1500 & allows a 10% discount.

Find S.P.

$$\rightarrow 1500 \xrightarrow{-10\%} \begin{array}{r} 1500 \\ - 150 \\ \hline 1350 \end{array}$$

⑩ Buys 10 pens for ₹ 150 & sells for ₹ 200. Profit = ?

$$\rightarrow \text{Price of 1 pen} = \frac{150}{10} = 15$$

$$\frac{3}{100} = \frac{20}{20}$$

$$\text{Now, sells} = \frac{200}{10} = 20$$

$$3x = 400$$

$$x = \frac{400}{3} = 133.33$$

$$\therefore 33.33 \%$$

⑪ gives a 15% discount & still makes a profit 20%. What is markup percentage?

$$\rightarrow 100 \xrightarrow{-15\%} 85$$

$$\frac{120}{100} = \frac{85}{x}$$

$$2x \xrightarrow{+20\%} 85$$

$$6x = 425$$

$$x = 70.83 = \text{C.P}$$

$$100 - 70.83 = 29.17 \approx 30 \therefore \frac{30}{70} \times 100 = 42.85\%$$

⑫ Sold for ₹ 2250 at a 10% profit. what is C.P.

$$\rightarrow x + 10\% \rightarrow 2250$$

$$\frac{110}{100} = \frac{2250}{x}$$

$$11x = 22500$$

$$x = 2045$$

④ Wants a profit of 25% on a item's costs ₹800
 what should be S.P.

$$800 \xrightarrow{25\%} 10 + 10 + 5 \rightarrow \begin{array}{r} 80 \\ + 80 \\ + 40 \\ \hline 200 \end{array}$$

$$800 + 200 = \underline{\underline{1000}}$$

⑤ Sold for ₹ 15,000/- at loss of 10%. Find C.P.

$$\rightarrow \frac{90}{100} = \frac{15,000}{x} \quad 9x = 15,000 \\ x = \underline{\underline{16,666}}$$

⑥ Marked 50% above the C.P. & then sold at discount of 20%. What is profit %?

$$\rightarrow 100 \xrightarrow{+50\%} 150 \xrightarrow{-20\%} 120 \quad \therefore 20\% \quad \text{C.P.} \curvearrowright \text{M.P.} \curvearrowright$$

⑦ Makes profit of 12% after allowing a 5% discount
 Find M.P. whose C.P. is ₹400

$$\rightarrow 400 \xrightarrow{12+5} x \xrightarrow{-5\%} \begin{array}{l} 12 = 10 + 1 + 1 \\ = 40 + 4 + 4 \end{array}$$

$$\text{C.P.} \quad \text{M.P.}$$

448 is S.P. after giving 5% discount on M.P. = $\frac{48}{400 + 48} \therefore \underline{\underline{448}}$

$$\text{M.P.} \xrightarrow{-5\%} 448$$

$$\frac{95}{100} = \frac{448}{x} \quad 19x = 8960 \\ x = \underline{\underline{471.57}}$$

⑯ C.P. ₹ 2180 & S.P. 576 Profit %?

$$\begin{array}{r} \xrightarrow{-} \\ - 576 \\ - 480 \\ \hline 096 \end{array} \quad \begin{array}{r} 96 \\ \times 100 \\ \hline 20 \% \end{array}$$

$$\begin{array}{r} 480 \\ 576 \\ \hline 960 \end{array}$$

⑰ Profit of ₹ 50 is made whose C.P. ₹ 500 Profit %?

$$\begin{array}{r} \xrightarrow{-} \\ \text{C.P.} \rightarrow 500 \\ \text{P.} \rightarrow 50 \\ \text{S.P.} \rightarrow 550 \end{array} \quad \begin{array}{r} 50 \\ \times 100 \\ \hline 10 \% \end{array}$$

⑲ Sells at 15% profit & S.P. is 2300. C.P.=?

$$\begin{array}{r} \xrightarrow{-} \\ \text{20} \xrightarrow{+15\%} 2300 \\ \text{C.P.} \qquad \qquad \text{S.P.} \end{array} \quad \begin{array}{r} 23 \\ \frac{115}{100} = \frac{2300}{20} \\ 23 \text{ 20} = 46000 \\ \hline 20 = 2000 \end{array}$$

⑳ C.P. is ₹ 750 & S.P. 900 Gain % = ?

$$\begin{array}{r} \xrightarrow{-} \\ \text{S.P.} \rightarrow 900 \\ \text{C.P.} \rightarrow 750 \\ \text{P.} \rightarrow 150 \end{array} \quad \begin{array}{r} 900 \\ \frac{750}{150} \times 100 \\ 5 \\ \hline 20 \% \end{array}$$

㉑ Sells at 20% loss. S.P. ₹ 640 C.P. → ?

$$\begin{array}{r} \xrightarrow{-} \\ \text{100} \xrightarrow{-20\%} 80 \\ \text{C.P.} \qquad \qquad \text{S.P.} \end{array} \quad \begin{array}{r} 100 \xrightarrow{-20\%} 640 \\ \frac{80}{100} = \frac{640}{x} \\ 4x = 3200 \\ \hline x = 800 \end{array}$$

⑩ Sells for ₹ 9600 at profit 20% find C.P.

$$\rightarrow 2l \xrightarrow{+20\%} 9600$$

$$6l = 48,000$$

$$2l = 8000$$

⑪ Sells for ₹ 500 at 20% profit. C.P = ?

$$\rightarrow 2l \xrightarrow{+20\%} 500$$

$$\text{C.P.} \quad \text{S.P.}$$

$$\frac{6l}{100} = \frac{500}{2l}$$

$$6l = 2500$$

$$2l = 416.67$$

⑫ buys 2 for 1500/each, sells one at 20% profit & other at 10% loss. Find Profit or loss

$$\rightarrow 1500 \xrightarrow{+20\%} 1800$$

$$1500 \xrightarrow{-10\%} 1350$$

$$\underline{3000} \quad \underline{3150}$$

calculated for single book

$$\frac{150}{3000} \times 100 = 5\% \text{ profit}$$

⑬ Sells at ₹ 1250 with loss (2%), C.P = ?

$$\rightarrow 2l \xrightarrow{-2\%} 1250$$

$$\text{C.P.} \quad \text{S.P.}$$

$$\frac{88}{100} = \frac{1250}{2l}$$

$$2l = 1250$$

$$2l = 31,250$$

$$2l = 1420$$

26) Find profit % earned after selling an article at a doubled rate for half quantity

→ 100 → 200 is for half quantity
∴ + 200 for remaining half quantity

400

$$400 - 100 = \underline{\underline{300}} \%$$

27) No. is multiplied by 20% of itself. The sum is then doubled, then final value is 490. Find no.

→ Suppose

$$100 \xrightarrow{20\%} 20 \quad \therefore 100 + 20 = 120 \\ + \frac{120}{240}$$

Now, $\frac{240}{100} = \frac{490}{x}$

$$24x = 4900$$

$$\underline{x} = \underline{\underline{204.16}}$$

I am unable to
solve it \therefore

$$100 \times 20 = 2000$$

Now 2000 × double

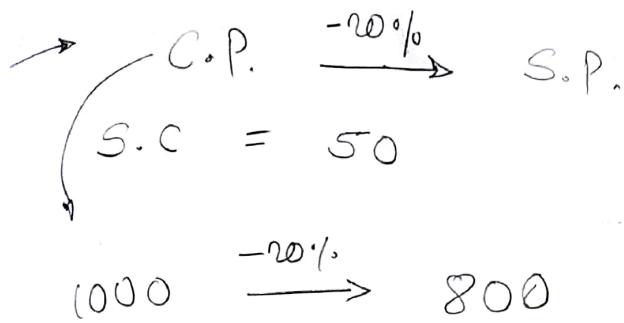
$$\frac{4000}{100} = \frac{490}{x}$$

$$x = \frac{490 \times 100}{4000} = \underline{\underline{12.25}}$$

$$x \times 0.2x = 0.2x^2 \times 2(\text{double}) = 0.4x^2 = 490$$

$$x^2 = \frac{490}{0.4} = 1225 \quad x = \underline{\underline{35}}$$

28) Sold at 20% less by its C.P. if selling cost is ₹ 50 & selling cost is 5% of S.P. find loss.



$$S = \frac{50}{C.P} \times 100$$

$$C.P = \frac{50}{S} \times 100$$

$$C.P = 1000$$

$$\begin{array}{r} 1000 \\ - 800 \\ \hline 200 \text{ loss} \end{array}$$

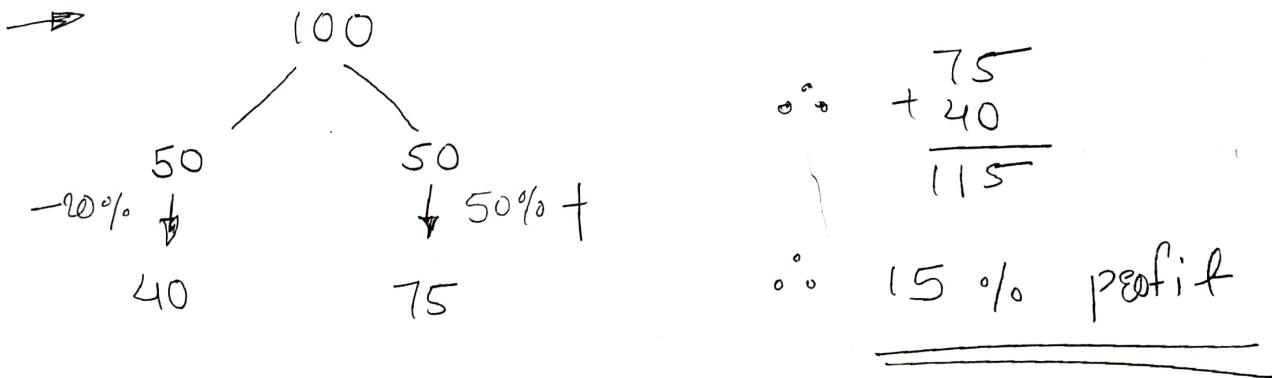
$$\frac{5}{100} = \frac{50}{2e}$$

$$52e = 5000$$

$$2e = 5000/5$$

$$C.P = 2e = 1000$$

29) sells half his goods at 20% loss & rest of good is 50% profit. find profit % on entire transaction



30) Selling expenses for ₹ 6000 article is ₹ 50. If selling exp. is 10% more than loss. Find the loss %.

$$\rightarrow \text{loss} \xrightarrow{+10\%} 50 \quad \therefore \text{loss} \approx 45$$

$$\therefore \frac{45}{6000} \times 100 = 0.75\% \quad \underline{\underline{}}$$

(31) Profit on selling 1 article = cost of 2 such articles
 find profit %

\rightarrow Profit on 1 article = C.P. of 2 article

$$\text{Suppose } 100 = 50 + 50$$

\therefore C.P. of 1 article = 50 & profit is 100

$$\therefore \frac{100}{50} \times 100 = 200\%$$

(32) Initial price is decreased by 20% but S.P. is constant
 if initial profit was £500, find new profit

It is known the initial profit was 20% of C.P.

$$\rightarrow \text{I.P.} \xrightarrow{-20\%} 20 = \frac{500}{\text{C.P.}} \times 100$$

$$2500 \xrightarrow{-20\%} \begin{array}{r} 2500 \\ - 500 \\ \hline 2000 \end{array} \quad \text{C.P.} = \frac{500}{20} \times 100 \\ \text{C.P.} = 2500$$

$$\text{Profit was } 500 \quad \therefore 2500 + 500 = 3000$$

S.P.

& now S.P. = 3000 & C.P. = 2500

$$\therefore \text{Profit} = 3000 - 2500 = 500$$

(33) Price decreased by 10% & S.P. is constant. If initial
 profit % = 25%, find new profit

$$\rightarrow P \xrightarrow{-10\%} \text{S.P.} = \text{const}$$

$$\text{Suppose } 100 \xrightarrow{+25\%} 125$$

for initial C.P. S.P.

C.P. is 100 & decrease by 10 %

∴ C.P. = 90 & S.P. remains same

$$\begin{aligned}\therefore \text{Profit} &= \text{S.P.} - \text{C.P.} \\ &= 12.5 - 90 \\ &= 35\end{aligned}$$

$$\text{Profit \%} = \frac{35}{90} \times 100 = \underline{\underline{38.88 \%}}$$

④ C.P. is doubled & S.P. is made half. If the initial profit % was 500 %, find profit % now

$$\rightarrow 500 \% = \frac{500}{100} \times 100$$

$$\therefore \text{C.P.} = 100 \quad \& \quad \text{Profit} = 500$$

$$\therefore \text{S.P.} = 600 \quad \dots \quad \text{in initial cond'}$$

$$\text{Now } \text{C.P.} = 2 \times 100 = 200$$

$$\text{S.P.} = \frac{1}{2} \times 600 = 300$$

$$\text{Profit} = 300 - 200 = 100$$

$$\text{Profit \%} = \frac{100}{200} \times 100 = \underline{\underline{50 \%}}$$

⑤ Sugar increases by 25 %. How much % family decrease their consumption to maintain regular price

$$\rightarrow 100 + 25 \% \rightarrow 125 \rightarrow 100$$

Sugar O.P. N.P.

$$\frac{25}{125} \times 100 = \frac{1}{5} \times 100 = \underline{\underline{20 \%}}$$

(36) Profit on selling 15 articles = cost of 2 articles

Find profit %.

→ profit on selling 15 articles = cost of 2 articles

$$100 = 50 + 50$$

$$\text{profit for 1 article} = \frac{100}{15} = 6.66$$

$$\text{cost of } \cancel{15} = 50$$

$$\text{Profit \%} = \frac{6.66}{50} \times 100 = \underline{\underline{13.33 \%}}$$

(37) 40% of a number A is 50% of a number B. Find A:B

$$\rightarrow 40\% A = 50\% B \therefore \frac{40}{100} A = \frac{50}{100} B$$

$$\frac{2}{5} A = \frac{1}{2} B$$

$$\frac{A}{B} = \frac{1}{2} \times \frac{5}{2}$$

$$\frac{A}{B} = \frac{5}{4}$$

$$\underline{\underline{A:B = 5:4}}$$

(38) The M.P. is 5 times the discount. Find S.P. in terms of discount.

$$\rightarrow \text{M.P.} = 5 \times \text{discount}$$

$$\text{S.P.} = \text{M.P.} - \text{discount} \quad \dots (\text{discount} = d)$$

$$= 5d - d$$

$$\text{S.P.} = 4d$$

$\therefore 4 \text{ times the discount}$

Ques 3) Solve for x . $x = 20\% \text{ of } 12\% \text{ of } 120\% \text{ of } 6250$

$$\rightarrow ① 120\% \text{ of } 6250 \rightarrow 20 \rightarrow 10+10 \rightarrow 625$$
$$120 \rightarrow \begin{array}{r} 6250 \\ + 1250 \\ \hline 7500 \end{array} \rightarrow 100 \quad \begin{array}{r} 625 \\ + 625 \\ \hline 1250 \end{array}$$
$$\rightarrow 20 \quad \begin{array}{r} 7500 \\ + 750 \\ \hline 9000 \end{array}$$

$$\begin{array}{l} ② 12\% \text{ of } 7500 \text{ is } 10+1+1 \\ = 900 \end{array} \quad \begin{array}{r} 750 \\ + 75 \\ \hline 900 \end{array}$$

$$\begin{array}{l} ③ 20\% \text{ of } 900 \text{ is } 10+10 \\ = 180 \end{array} \quad \begin{array}{r} 90 \\ + 90 \\ \hline 180 \end{array}$$

Ques 4) C.P = ₹ 500 earn 100% profit & discount 35%.

$$\rightarrow 500 \xrightarrow{\text{S.P}} 1000 \quad \frac{65}{100} = \frac{1000}{2x}$$
$$1000 - 65x = 1000 -$$
$$2x = 1538$$

Ques 5) A is 25% more than B. By what % B is smaller than A

$$\rightarrow A = 25\% + B$$
$$100 = 125 \quad \frac{25}{125} \times 100$$
$$= 20\%$$

$$100 \rightarrow 125$$



(42) If discount is twice the C.P. & M.P. is 10000
find S.P. No profit or loss was made

$$\rightarrow \text{disc} = 2 \times \text{C.P}$$

$$\text{M.P.} = 10,000$$

$$\text{No profit, No loss} \rightarrow \text{C.P.} = \text{S.P}$$

$$\text{disc} = 2 \times \text{C.P}$$

$$= 2 \times \text{S.P}$$

$$\text{M.P.} = \text{disc} + \text{S.P}$$

$$= 2 \times \text{S.P} + \text{S.P}$$

$$\therefore \text{M.P.} = 3 \text{S.P} \quad \text{or} \quad 3 \text{C.P}$$

$$10,000 = 3 \text{S.P}$$

$$\text{S.P.} = \frac{10,000}{3} = \underline{\underline{3,333}}$$

(43) CP is 30% less than S.P. The dis. is 40% on S.P.
if M.P. is 12600 find C.P.

$$\rightarrow \text{S.P.} \xrightarrow{-30\%} \text{C.P.}$$

disc is 40% on S.P.

$$\text{M.P.} = 12,600$$

$$\text{M.P.} = \text{disc} + \text{S.P}$$

(44) If 33.33% of a number is 20 more than 16.66% of the number find 120% of number

$$\rightarrow 33.33\% \text{ of } n = 20 + 16.66 \text{ of } n$$

$$\frac{33.33}{100} n = \frac{16.66}{100} n + 20$$

$$\frac{1}{3} n = \frac{1}{6} n + 20$$

$$\frac{2}{3} n = \frac{1}{6} n + 20$$

$$\frac{2}{6} n = \frac{1}{6} n + 20$$

$$\frac{2}{6} n - \frac{1}{6} n = 20$$

$$\frac{1}{6} n = 20$$

$$n = 120$$

Now,

120% of n

$\frac{100+90+10}{100} \times 120$

$120 + 12 + 12$

$= 144$

so, 03/05

(45) Find the no. if, 20% of a number is 20 more than 20% of another no. 20

$$\rightarrow 20\% \text{ of } n = 20 + 20\% \text{ of } 20$$

$$\frac{20}{100} n = 20 + \frac{20}{100} \times 20 \quad \dots \text{ (re be 20)}$$

$$\frac{1}{5} n = 20 + \frac{1}{5} \times 20$$

$$\frac{1}{5} n = 20 + 4$$

$$\frac{1}{5} n = 24$$

$$n = 120$$

(46) No. is doubled, then tripled & this process is repeated twice.

what is % change

\rightarrow Suppose 100 $\xrightarrow{\text{double}}$ 200 $\xrightarrow{\text{triple}}$ 600 \dots ①

600 $\xrightarrow{\text{double}}$ 1200 $\xrightarrow{\text{triple}}$ 3600 \dots ②

$$\therefore 3600 - 100 = 3500$$

$\therefore \underline{\underline{3500 \%}}$

Q7) By how much should 234 be reduced to 81.9?

65% of itself

$\rightarrow 234 \xrightarrow{-35\%} 20 \quad \therefore \frac{10}{100} \times 234 = 23.4$

$\therefore 81.9$

$\begin{array}{r} 0 \\ 10 \\ \hline 10 \\ - 35 \\ \hline 65 \end{array}$

$35 = 10 + 10 + 10$

23.4

23.4

23.4

11.7

$\underline{\underline{81.9}}$

Q8) What is 90% of 900% of 9000% of g

$$\rightarrow 90\% = \frac{90}{100}, \quad 900\% = \frac{900}{100} = g, \quad 9000\% = \frac{9000}{100} = 90$$

① 9000% of g $\rightarrow 90 \times g = 810$

② 900% of 810 $\rightarrow g \times 810 = 7290$

③ 90% of 7290 $\rightarrow \begin{array}{r} 612810 \\ - 729 \\ \hline 6561 \end{array} \quad \begin{array}{l} 90 = 100 \\ \cancel{A} \quad \cancel{-10} \\ \hline 90 \end{array}$

Q9) Out of 25 employees, 13 are set off & the salaries of rest of the employees is increased by 24%. Find total increase or decrease in company's expenditure.

\rightarrow Condⁿ ①

25 emp & suppose salary is 100 from 25 emp 13 left
 $25 - 13 = 12$

$$25 \times 100 = 2500$$

Condⁿ ②

from 25 emp 13 left

$$25 - 13 = 12$$

12 emp are now in company & their salary is increased by 24%

$$\therefore 12 \times 124 = 1488$$

$$\text{Now, } 2500 - 1488 = 1012$$

By ₹1012 company's expenditure reduced

$$\therefore \frac{1012}{2500} \times 100 = 40.48\%$$

50) Bought for RS 3500 discount of 15% discount is RS=?

$$\rightarrow \text{C.P.} = 3500 \quad 15 = 10 + 5$$

$$d = 15\%$$

$$3500 \xrightarrow{-15\%}$$

$$10\% - 350 \\ 5\% - \frac{175}{525}$$

$$2) \overline{\overline{350}} \\ \underline{2} \\ \overline{\overline{15}} \\ \underline{14} \\ \overline{\overline{10}}$$

$$\therefore 525$$

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