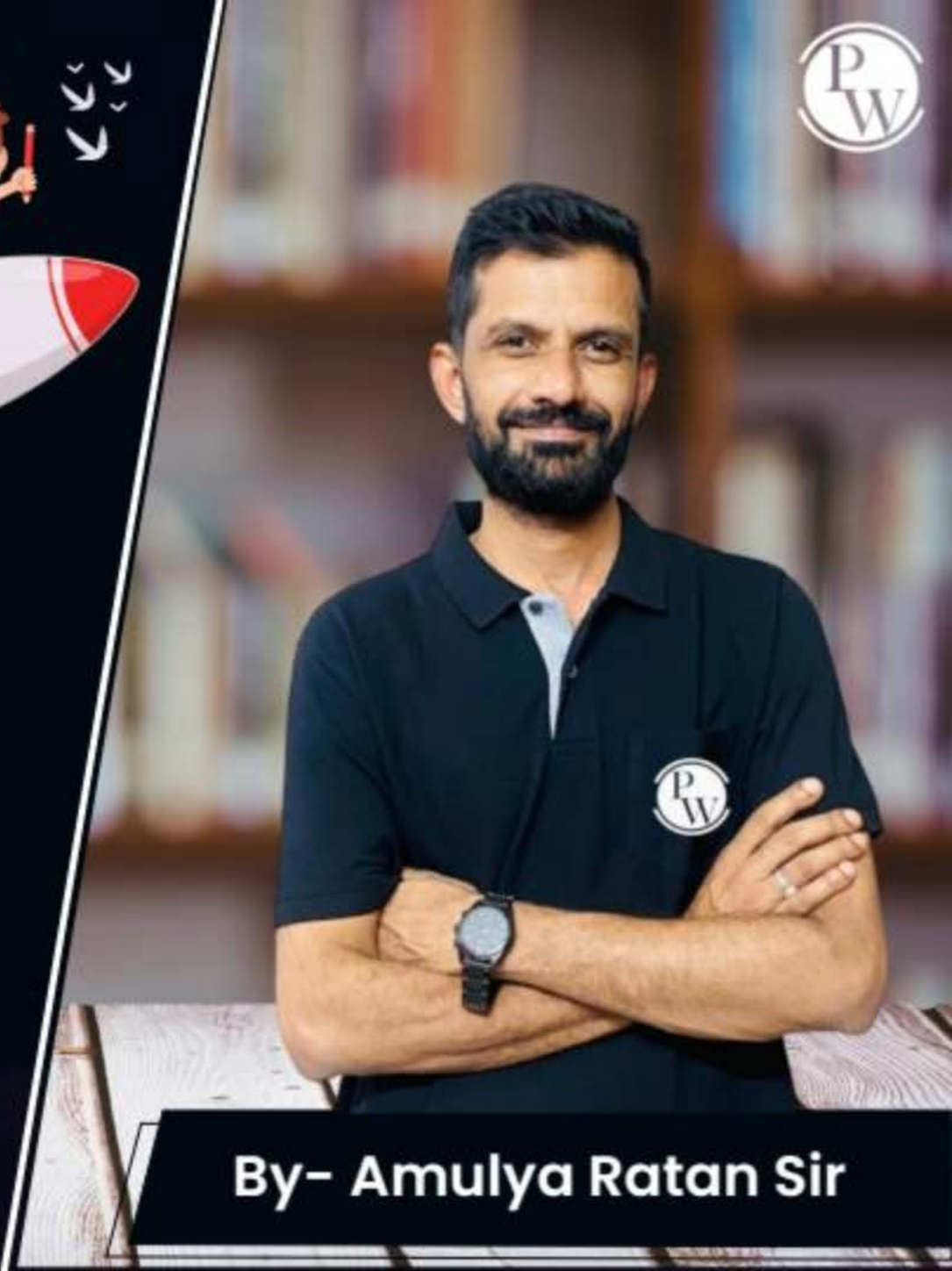
GATE

Data Science & AI

General Aptitude

QUANTITATIVE APTITUDE

Lecture No.- 05



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Recap of Previous Lecture

Topic Averages & Percentages

Topics to be Covered

Topic-1 Profit & Loss

Topic-2 Mixtures & Alligations

[MCQ]

#Q. The average monthly salary of 20 employees is ₹1500. If the manager's salary is added the average becomes ₹1600. The manager's salary is

Assignment

A ₹ 3500

B ₹ 3600

C ₹ 3800

D ₹ 3900

[MCQ]

#Q. 12 years ago, the average age of a husband and his wife was 20yrs. The average age is same today, they having two children. What is the present age of the youngest child if children differ in age by 2yrs?

Assignment

A 8

B 6

C 7

D 9

[MCQ]

#Q. The average of 5 consecutive integers starting with x is y. What is the average of 6 consecutive numbers starting with (x+2)?

Assignment

A $y+3$

B $\frac{2y+9}{2}$

C $y+2$

D $\frac{2y+5}{2}$

$x, x+1, x+2, x+3, x+4 \Rightarrow y$

$x+2 = y$

$y, y+1, y+2, y+3, y+4, y+5$

$\frac{y+2+y+3}{2}$

$= \frac{2y+5}{2}$

[MCQ]

#Q. A cricketer has certain average of runs for his 64 innings. In his 65th innings, he is bowled out for no score on his part. This brings down his average by 2 runs. His new average is?

Assignment

A 130

B 128

C 70

D 68

$130 - 2 = 128$

[MCQ]

700% ↑

800% of 100

$\frac{800}{100} \times 100 = 800$

#Q. The population of a town doubled every 5 years from 2000 to 2015. What is the percentage increase in population in this period?

Assignment

A 800%

B 400%

C 700%

D 600%

$2 \times 2 \times 2$

$= 8$

↓ ← 2000 – 2005

↓ ← 2005 – 2010

↓ ← 2010 – 2015

700 → 700% ↑

[MCQ]

#Q. If P is 60% taller than Q, by what percent is Q shorter than P?

Assignment

$P = 160\%$ of Q

$\frac{160}{100} P = Q$

$0.625\, P = Q$

0.375

37.5%

A 40%

B 37.5%

C 62.5%

D None of these

[MCQ]

#Q. A is twice B and B is 200% more than C. By what percent is A more than C?

Assignment

$A = 2B$

$B = 3C$

$A = 2 \times 3C$

$A = 6C$

500%

A 200%

B 400%

C 500%

D 600%

[MCQ]

#Q. The population of a village is 5500. If the number of males increases by 11% and the number of females increases by 20%, then the population becomes 6330. The population of the female in the village is?

Assignment

A 2000

B 2500

C 3000

D 3500

$\therefore F = \frac{225}{0.09} = 2500$

$(M + F = 5500) \times 1.11$

$1.11M + 1.2F = 6330$

$1.11M + 1.11F = 6105$

$0.09F = 225$

[MCQ]

$\frac{19200}{12} = 1600$

$10\% = \frac{10}{100} = 0.1$

#Q. Rohan spends 40% of his monthly income on food items and 50% of the remaining on clothes and conveyance. He saves one-third of the remaining amount after spending on food, clothes and conveyance. If he saves Rs. 19200 every year, what is his monthly income?

Assignment

A 32000

B 16000

C 12000

D 6000

10% ⇒ Saving

10% of I = 1600

$I = \frac{1600}{0.1} = 16,000$

F ⇒ 40%

Cloth & Conv ⇒ 30%

60%

30%

[MCQ]

#Q. 5% of income of P is equal to 15% of income of Q and 10% of income of Q equal 20% of income of R. If R's income is 2000, then What is total income of P, Q and R?

Assignment

$5P = 15Q$

$P = 3Q$

$10Q = 20R$

$Q = 2R$

$R \Rightarrow 2000$

$Q \Rightarrow 4000$

$P \Rightarrow 12000$

18,000

A 9000

B 12000

C 15000

D 18000

PROFIT & LOSS

Investment ⇐ C.P

gain / profit

C.P < S.P ⇒ Profit

C.P > S.P ⇒ ~~loss~~ gi / Pi

C.P = S.P ⇒ No P No L

M.R.P

Marked Price

Return

S.P

M.P

~~loss~~

li

discount

di

Labelled Price

List Price

Tagged Price

PROFIT & LOSS

S.P. > C.P
= Profit

S.P. < C.P.
= Loss

S.P. = C.P.
= No Profit No Loss

$\frac{S.P}{C.P} > 1$

$\frac{S.P}{C.P} < 1$

$\frac{S.P}{C.P} = 1$

PROFIT & LOSS

Note:

Profit or loss percentage is to be applied always to the Cost Price only.

Discount percentage is to be applied always to the Marked Price only.

[MCQ]

#Q. If selling price and cost price are in the ratio 8:5, then find the profit% or loss%.

$$\frac{S.P}{C.P} = \frac{8}{5} = 1.6$$

6 → 60% Profit

[MCQ]

#Q. A Fruit seller purchases 11 orange for Rs. 10 and sells 10 orange for Rs. 11.

If he follows the same process, then, find his profit or loss%?

$C.P = \frac{10}{11}$

$S.P. = \frac{11}{10}$

$\frac{SP}{CP} = \frac{11}{10} \times \frac{11}{10}$

$= \frac{121}{100} = 1.21$

10% P 10% P

$1.1 \times 1.1 = 1.21$

$\frac{S.P.}{C.P}$ = ?

21% 21% Profit

[MCQ]

#Q. A milk vendor purchases milk at Rs. 72/ litre, and sells at Rs. 60/ litre. For every 1 litre milk he adds 200ml. of water. While selling milk he cheats 200ml. in 1 liter measurement. Find his Profit or Loss percentage.

25% Profit

$$\frac{S.P.}{C.P} = \frac{60}{72} \times \frac{1200}{1000} \times \frac{1000}{800}$$

$$= \frac{5}{4} = 1.25$$

$$P\% = \frac{P}{C.P} \times 100$$

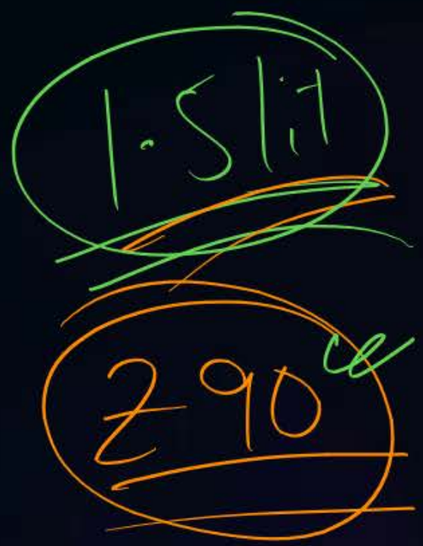
$$= \left(\frac{S.P - C.P}{C.P}\right) \times 100$$

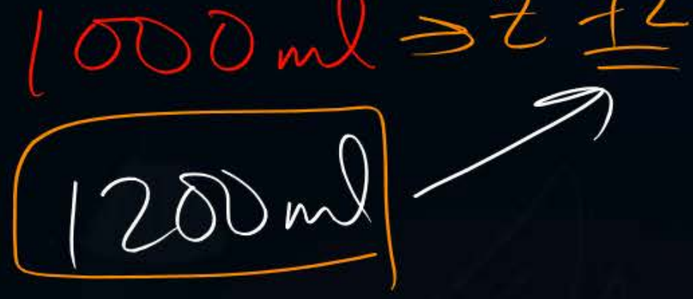
$$= \left(\frac{S.P}{C.P} - \frac{C.P}{C.P}\right) \times 100$$

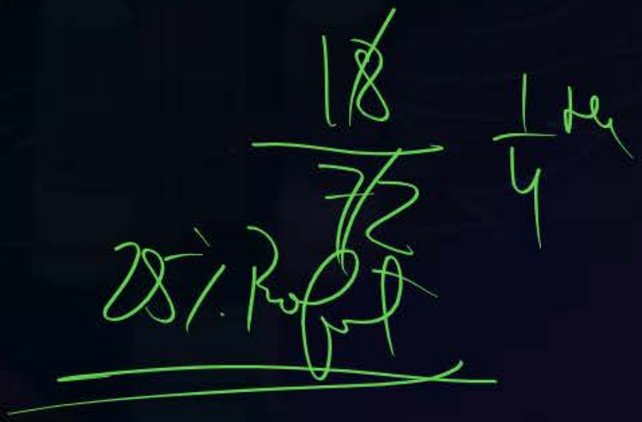
$$= \left(\frac{S.P}{C.P} - 1\right) \times 100$$

[MCQ]

#Q. A milk vendor purchases milk at Rs. 72/ litre, and sells at Rs. 60/ litre. For every 1 litre milk he adds 200ml. of water. While selling milk he cheats 200ml. in 1 liter measurement. Find his Profit or Loss percentage.







[MCQ]

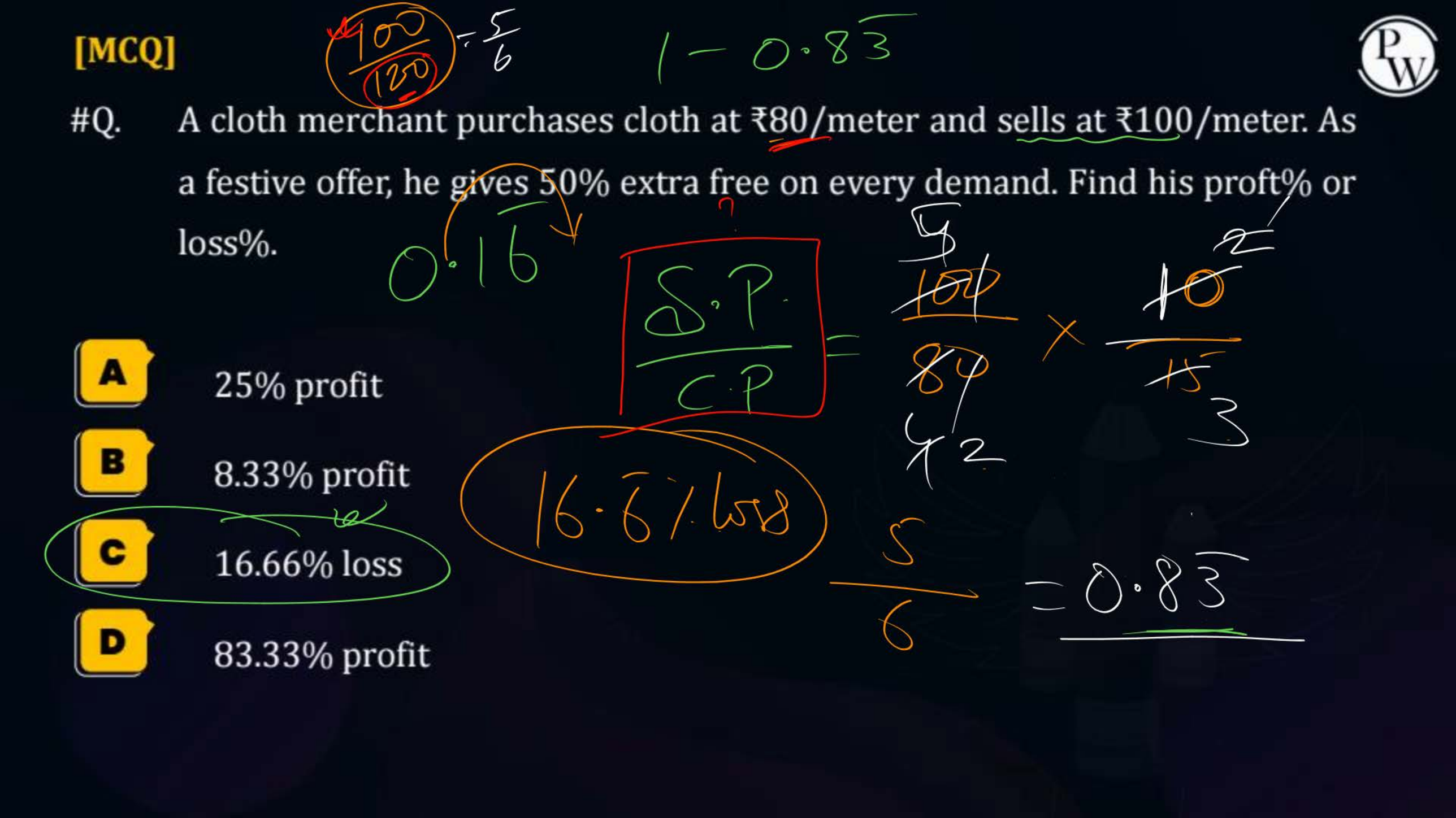
#Q. A cloth merchant purchases cloth at ₹80/meter and sells at ₹100/meter. As a festive offer, he gives 50% extra free on every demand. Find his profit% or loss%.

A. 25% profit

B. 8.33% profit

C. 16.66% loss

D. 83.33% profit



[MCQ]

B?

#Q. Due to downfall in the market, 'A' sells mangoes to 'B' saying "FOR EVERY 12 MANGOES, COUNT AS 8". Due to overnight demand, 'A' took his mangoes back from 'B' saying " FOR EVERY 8 MANGOES, COUNT AS 12". Find the profit or loss percent of 'A'.

55.5% loss

$\frac{28}{12} \times \frac{8}{12} = \frac{4}{9}$

$\frac{1.0000}{0.4444}$
0.5556

$= 0.\overline{4}$

0.5

PROFIT & LOSS

Note:

A trader may sometimes have multiple profits or losses simultaneously.

This is equivalent to having multiple changes and so all individual changes are to be multiplied to get the overall effect.

[MCQ]

#Q. Sunidhi bought 15 apples for Rs.10 and sold them at the rate of 12 apples for Rs.12. What is the percentage of profit made by her?

$C.P = \frac{10}{15}$ $S.P = \frac{12}{12} = 1$

$\frac{S.P}{C.P} = 1 \times \frac{15}{10} = 1.5$

50% Profit

A 100%

B 150%

C 125%

D None of these

[MCQ]

Assignment

#Q. A shopkeeper advertises for selling cloth at 4% loss. However by using a false meter scale he actually gains 25%. What is actual length of scale?

A 76.8 cm

B 77.8 cm

C 74.8 cm

D 75.8 cm

[MCQ]

Assignment

#Q. A man sells an article at a profit of 20%. If he had bought it at 10% less and sold it for Rs. 18 more, he would have gained 40%. Find the cost price of the article.

[MCQ]

Assignment

#Q. An article was sold at a profit of 20%. If both cost price and selling price are ₹100 less each, then magnitude of the percentage of profit would have been 4 percentage points more than that in the first case. Then the cost price is

A ₹ 500

B ₹ 600

C ₹ 800

D None of these

[MCQ]

Assignment

#Q. 5kg of ghee was bought by Vinod for ₹300. One kg from spoilt. He sells the remaining in such a way that on the whole he incurs a loss of 10%. At what price per kg does he sell the ghee?

A ₹ 46.25

B ₹ 45.70

C ₹ 67.50

D ₹ 46.60

Discounts:

Percentages

[MCQ]

No P No L

#Q. By giving a discount of 25%, a shopkeeper gains 25%. If he gives a discount of 40%, find his gain or loss%.

$S.P. = 75\%\ M.P$

$S.P. = 125\%\ C.P$

$75\%\ M.P = 125\%\ C.P$

$M.P = \frac{5}{3} C.P$

Disc 25% 40%

Profit 25% ?

$\frac{S.P}{C.P} = 1.25$

$\Rightarrow S.P = 1.25\ C.P$

$60\%\ M.P = \frac{60}{100} \times \frac{5}{3} C.P$

$S.P = C.P \Rightarrow \frac{S.P}{C.P} = 1$

$$\frac{75}{C.P} = 1.25$$

$$\frac{75}{1.25} = C.P \qquad 60$$

M.P = 2100

S.P = 2 75

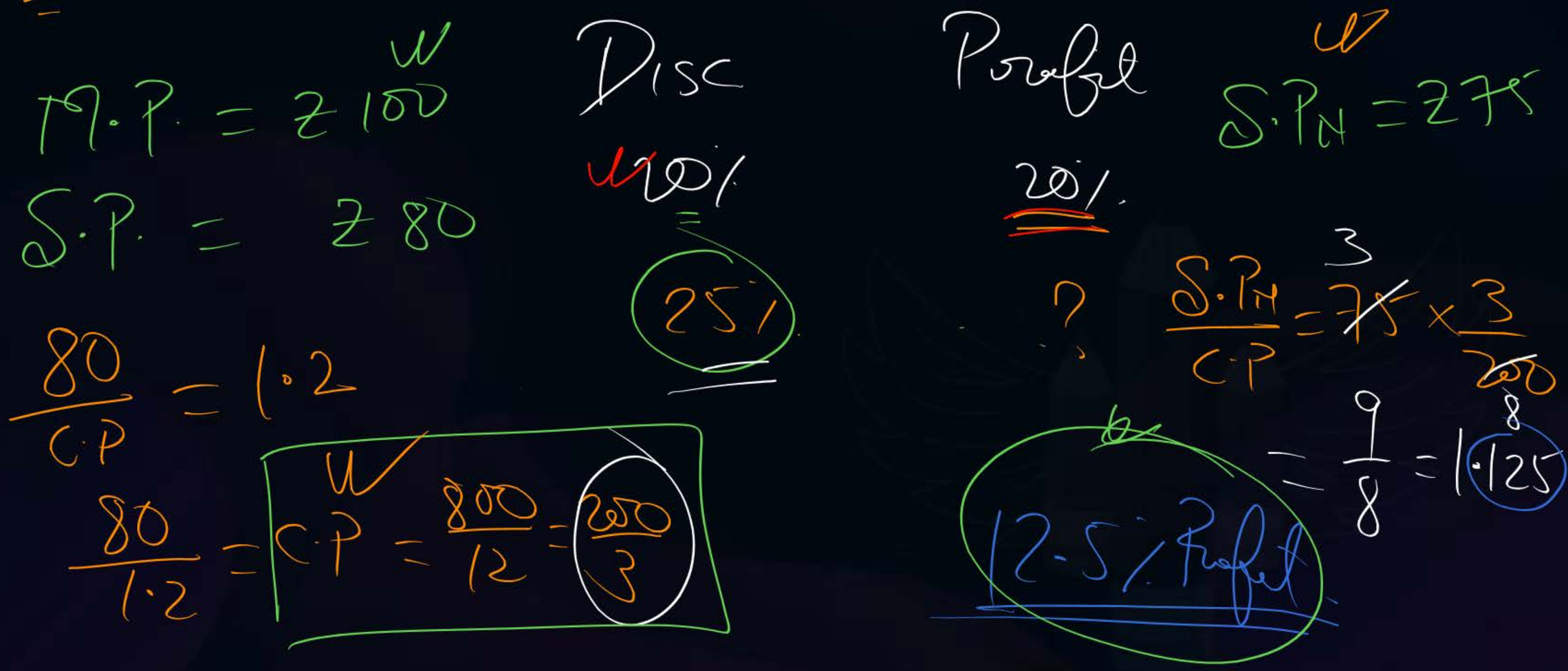
C.P = 2 60

S.P$_N$ = 260

No P No L

[MCQ]

#Q. A trader gains 20% by giving a discount of 20%, if he gives a discount of 25% then find his P% or L%.



3

2

~~80~~% M.P = ~~120~~% C.P

$$M.P = \frac{3}{2} C.P$$

$$\frac{S.P}{C.P} = \frac{9}{8} = 1.125$$

12.5% Profit

Puzzle:

#Q. A function hall was filled with 100 guests including men, women and kids. 100 biscuits has to be distributed among these guests, such that each man gets 4 biscuits, each woman as 3 and each kid gets 1/2 biscuits. How many men, women and kids are there in function hall?

M → ?

W → ?

K → ?

2 mins Summary

Topic

Profit Loss & ~~Mixtures Alligations~~

THANK - YOU