Profit Loss & Discount

SI & CI
- Percentage
- Ratio & Proportion

CP → Cost Price
SP → Selling Price
MP/MRP → Marked Price

Profit → Selling Price − Cost Price

L → CP − SP
D → MP − SP
P → SP − CP

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

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

$$D\% \Rightarrow \frac{D}{MP} \times 100$$

CP ₹100 → SP ₹120

P → ₹20

$$\%P = \frac{20}{100} \times 100$$

$$\%P = 20\%$$

CP
₹120

SP
₹150

P → SP − CP
150 − 120
₹30

% = $\frac{30}{120} \times 100$

% P = 25%

CP
100

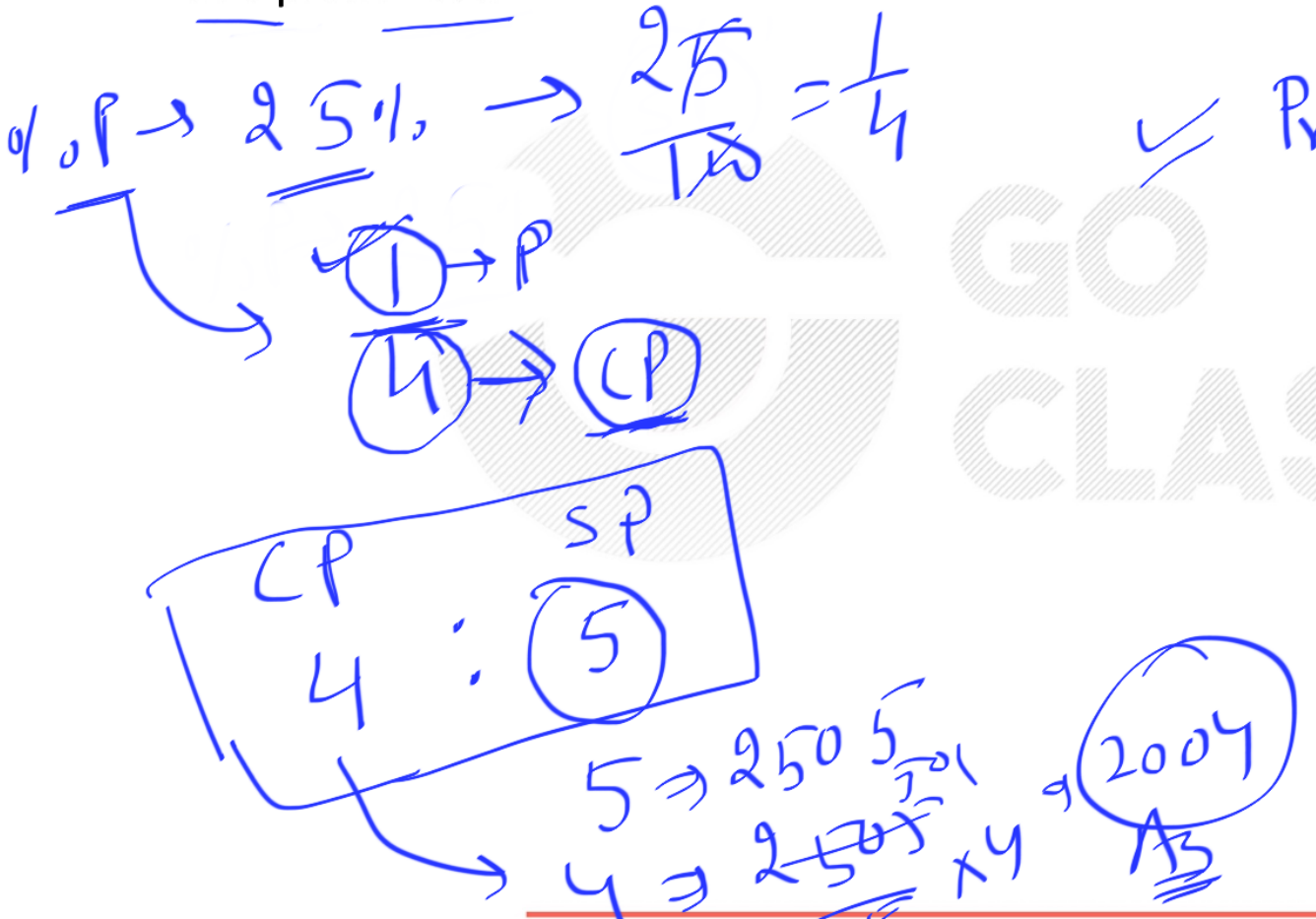
SP
90

Loss = CP − SP
100 − 90
10

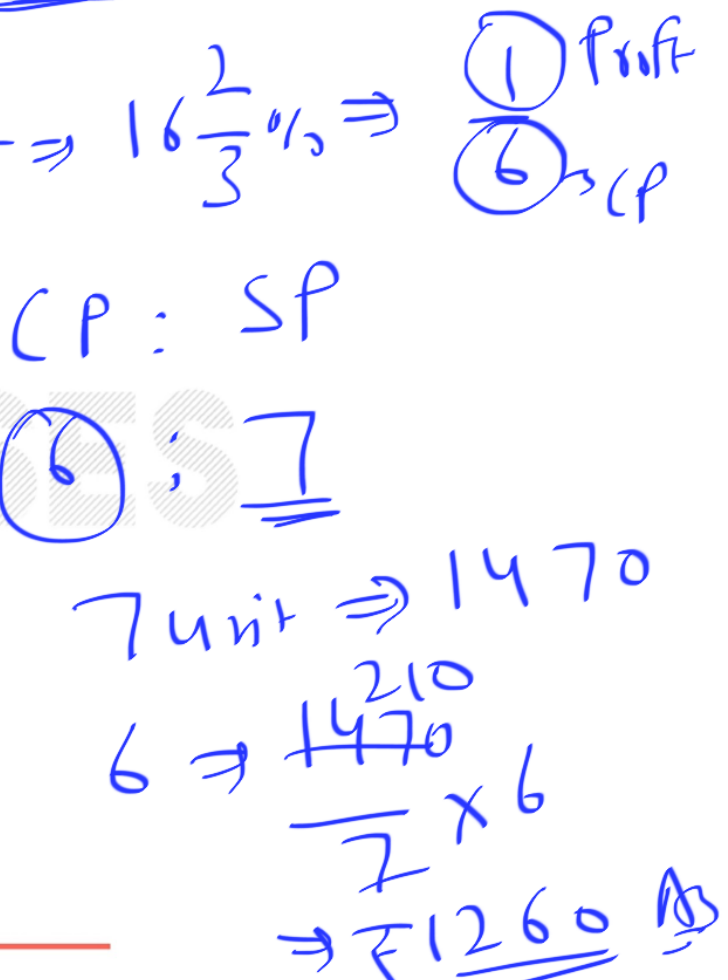
% L = $\frac{10}{100} \times 100$

% Loss = 10%

Eg.1 Find the cost price of an article which is sold at ₹2505 at a profit 25%.



Eg. 2 Find the cost price of an article which is sold at ₹1470 at a profit $16\frac{2}{3}\%$.



Eg.3 A shopkeeper sells his article at $16\frac{2}{3}\%$ profit on selling price. Find his actual profit percent.

P → CP

$16\frac{2}{3}\% = \frac{1}{6}$ → SP

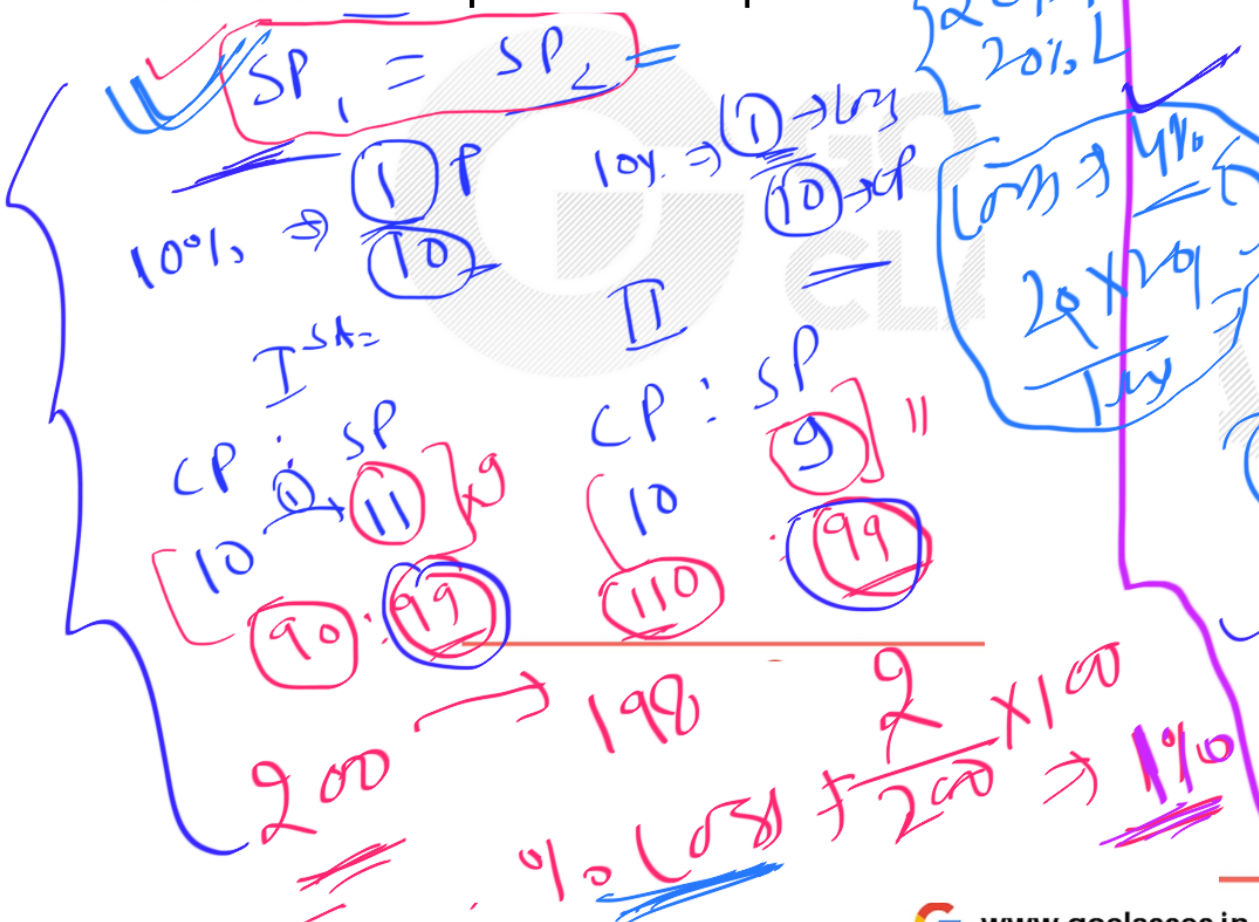
CP : SP

5 : 6

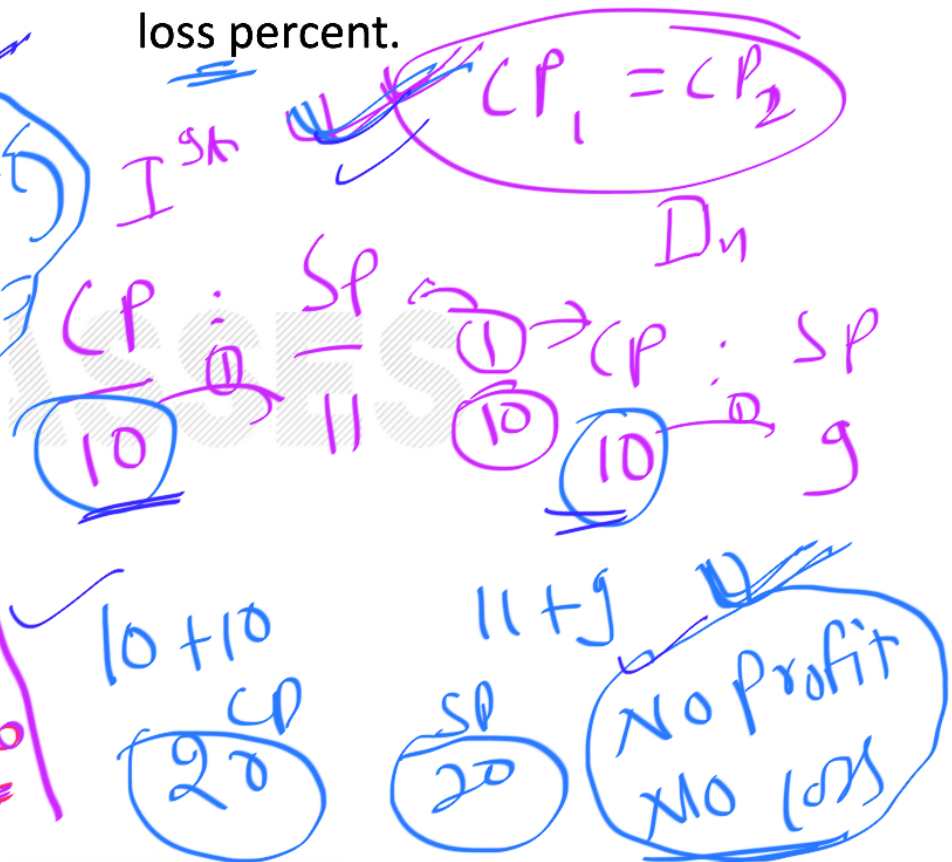
$\%P \Rightarrow \frac{P}{CP} \times 100 \Rightarrow \frac{1}{5} \times 100$

$= 20\%$

Eg.4 A Shopkeeper selling two articles at equal price but gains 10% profit on 1st article and 10% loss on 2nd article. Find his actual profit or loss percent.

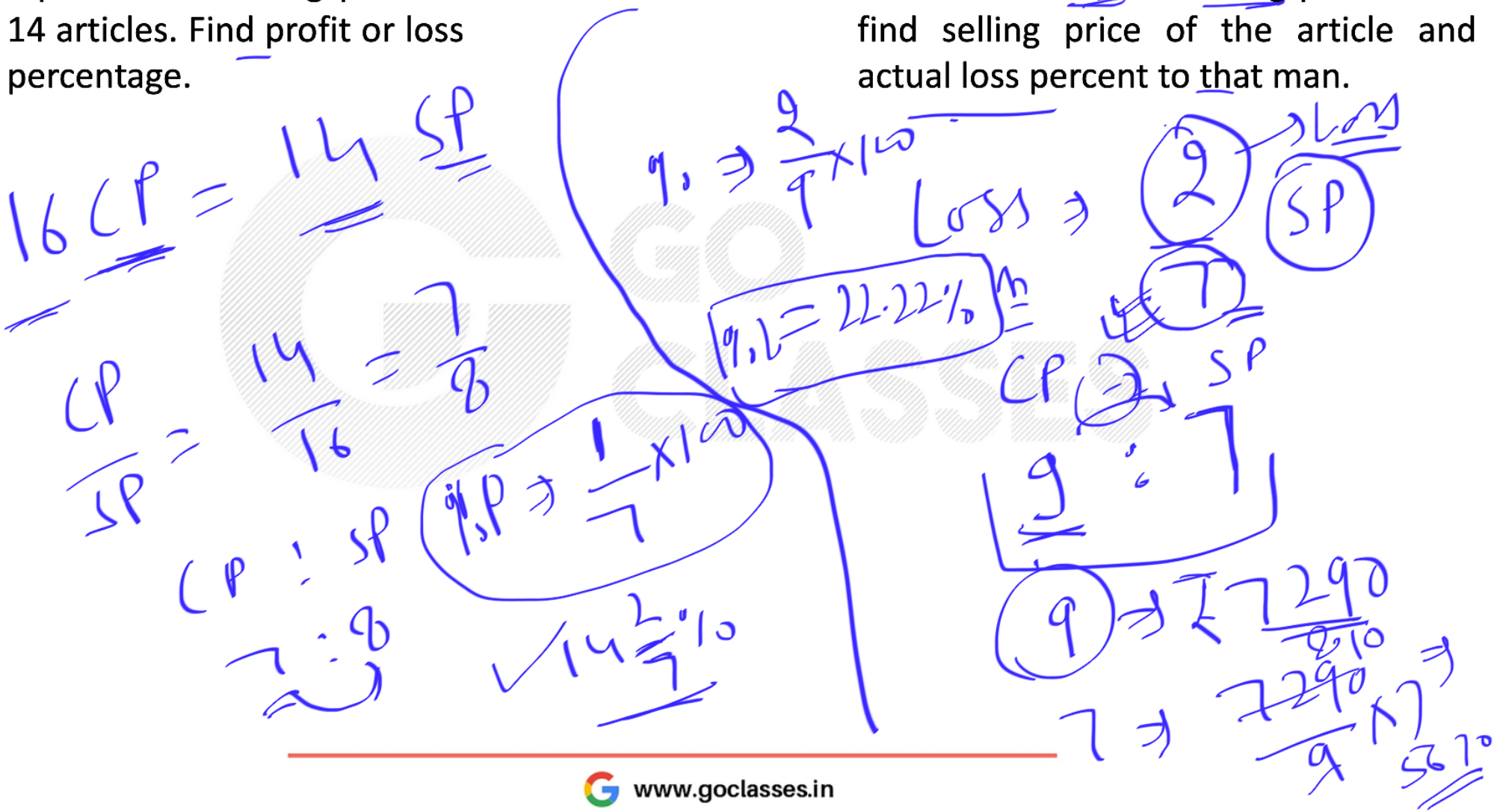


Eg.5 A Shopkeeper selling two articles of equal cost price and gains 10% profit on 1st article and 10% loss on 2nd article. Find his actual profit or loss percent.



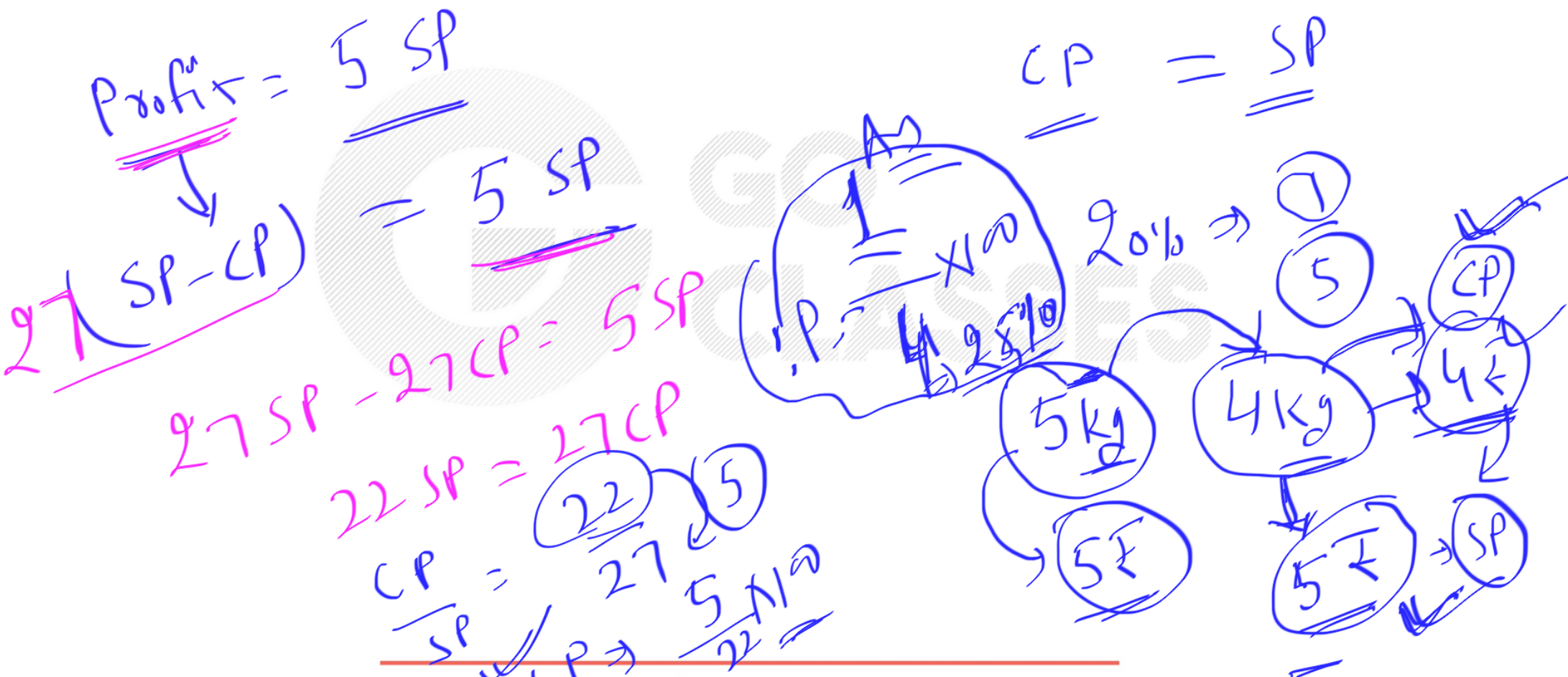
Eg.6 Cost price of 16 articles is equal to the selling price of 14 articles. Find profit or loss percentage.

Eg. 7 A man buys an article for ₹7290 and sold at a loss 2/7 of selling price. Then find selling price of the article and actual loss percent to that man.

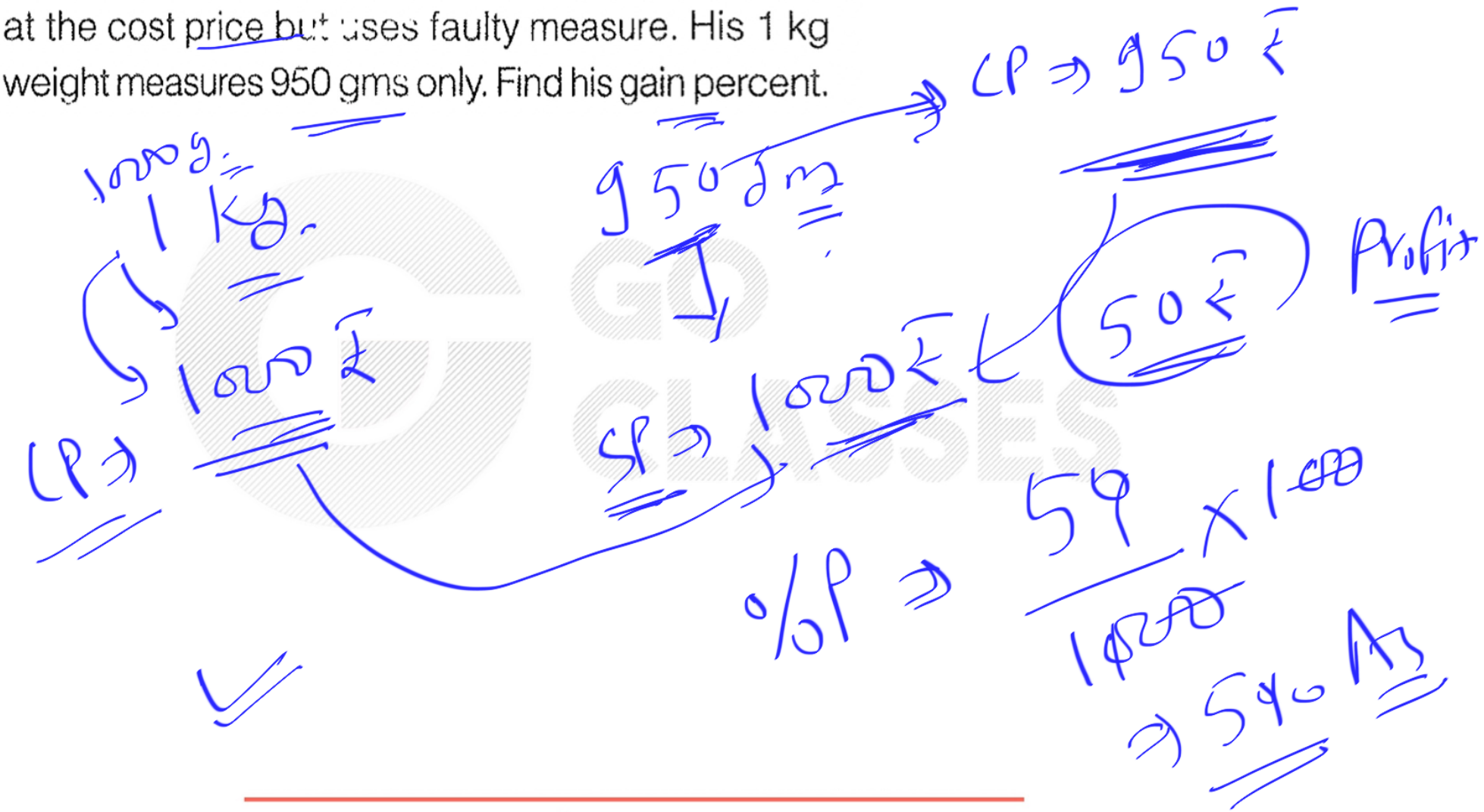


Eg. 8 By selling 27 articles a man gains equal to selling price of 5 articles. Find his gain percentage.

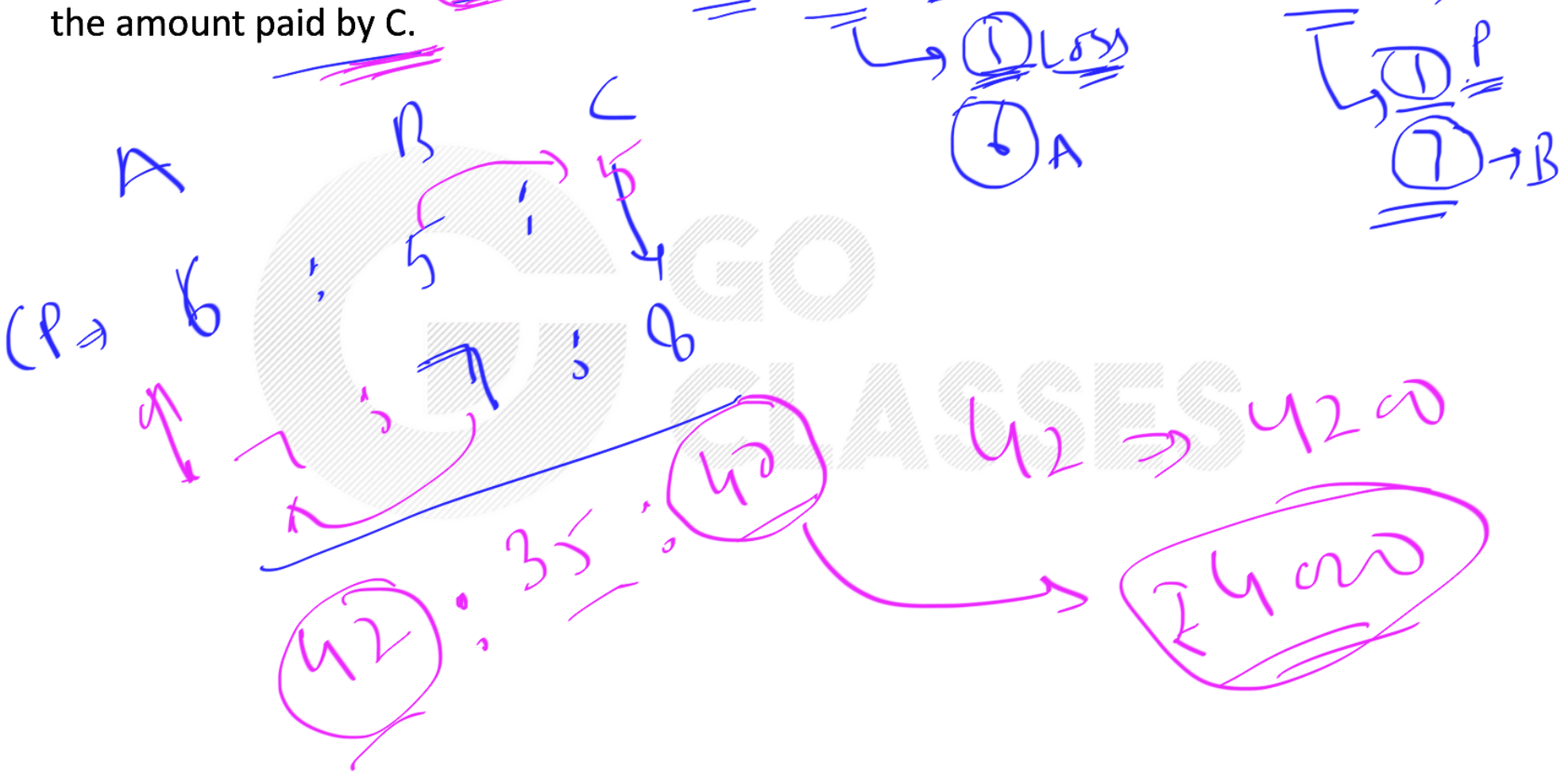
Eg.9 A shopkeeper sells the quantity in the same price rate for which he has bought. But he gives 20% less quantity to the customer. Find his profit percent.



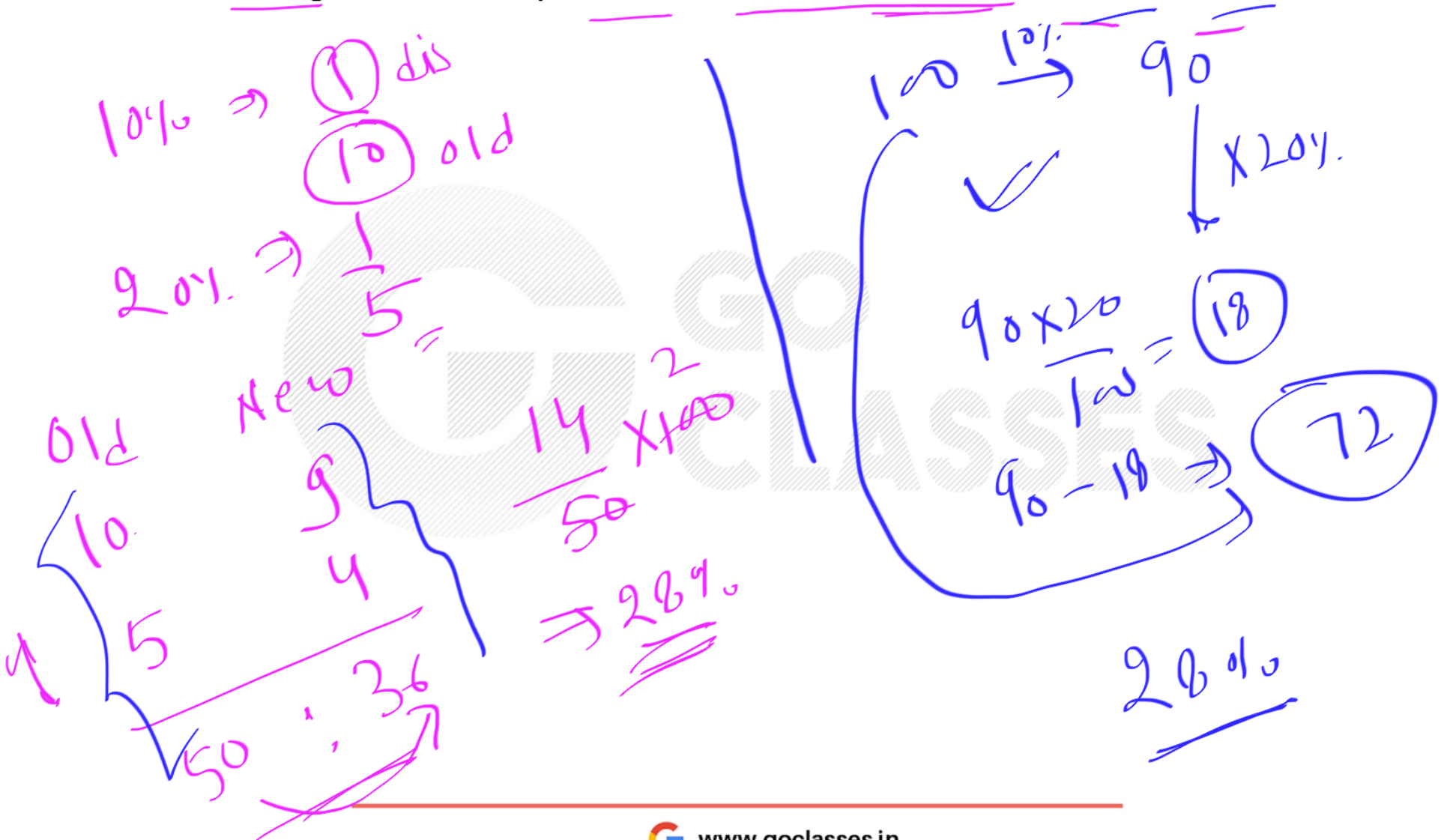
Eg. 10 A dishonest shopkeeper professes to sell his goods at the cost price but uses faulty measure. His 1 kg weight measures 950 gms only. Find his gain percent.



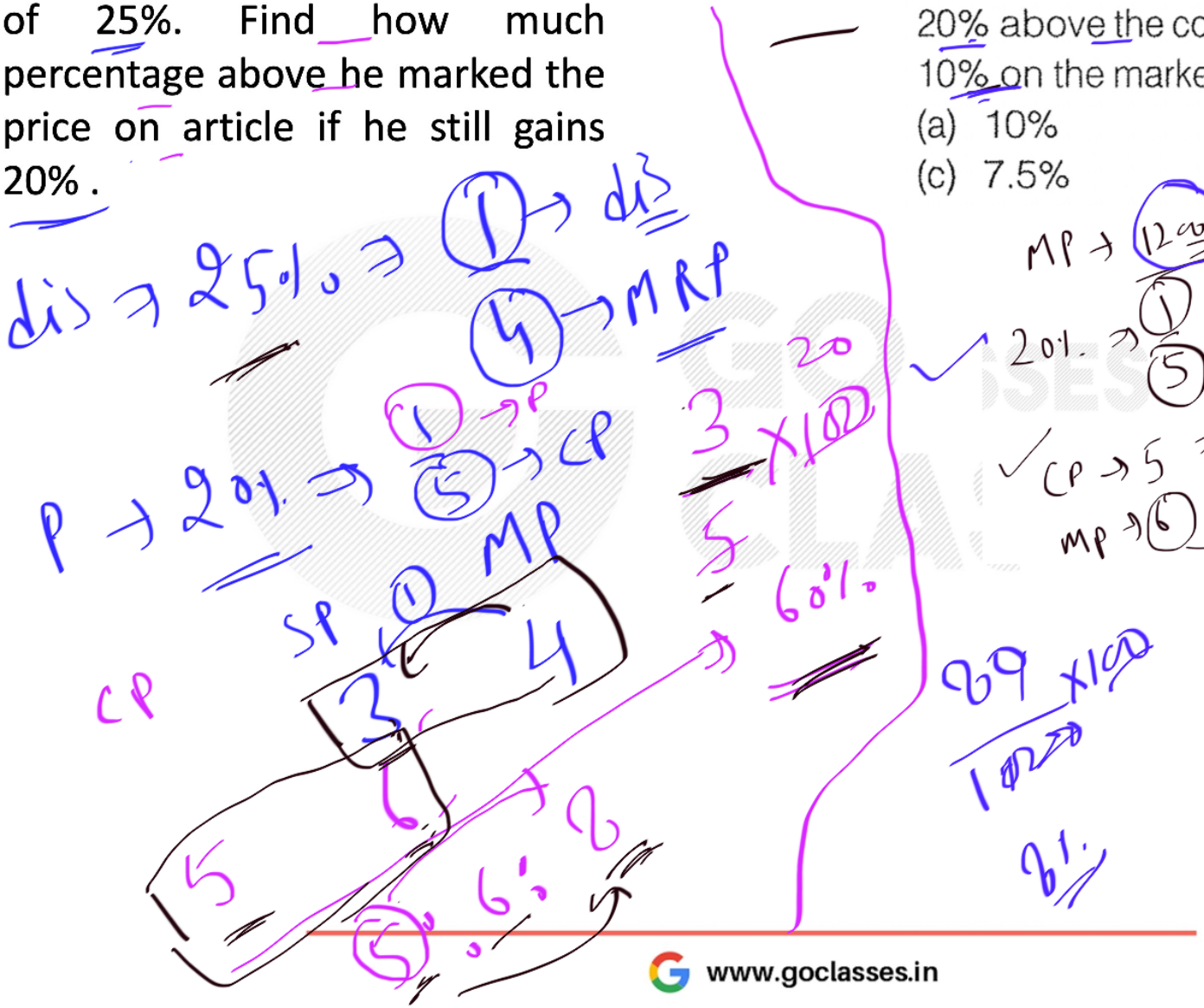
Eg 11. A bought an article for ₹4200 sold it to B at $16\frac{2}{3}\%$ loss. B sold it to C at $14\frac{2}{7}\%$ profit. Find the amount paid by C.



Eg 12. What is the single discount equivalent to successive discount of 10% and 20%.



Eg. 13 A shopkeeper allows a discount of 25%. Find how much percentage above he marked the price on article if he still gains 20% .



Eg. 14 The marked price of a table is Rs. 1200, which is 20% above the cost price. It is sold at a discount of 10% on the marked price. Find the profit percent.

(a) 10% (b) 8%

(c) 7.5% (d) 6%

20% = (1) abr^ / (5) CP

10% = (1) dis / (10) → MP

CP : MP : SP

5 : 6 : 6

↑ 10 : 10 : 9

50 : 60 : 54

$\frac{4}{50} \times 100^{2} \Rightarrow$ 8% A

Q.1

Items	Cost (₹)	Profit %	Marked Price (₹)
P	5,400	– – –	5,860
Q		25	10,000

Details of prices of two items P and Q are presented in the above table. The ratio of cost of item P to cost of item Q is $3 : 4$. Discount is calculated as the difference between the marked price and the selling price. The profit percentage is calculated as the ratio of the difference between selling price and cost, to the cost

$$(\text{Profit\%} = \frac{\text{Selling price} - \text{Cost}}{\text{Cost}} \times 100)$$

The discount on item Q, as a percentage of its marked price, is _____

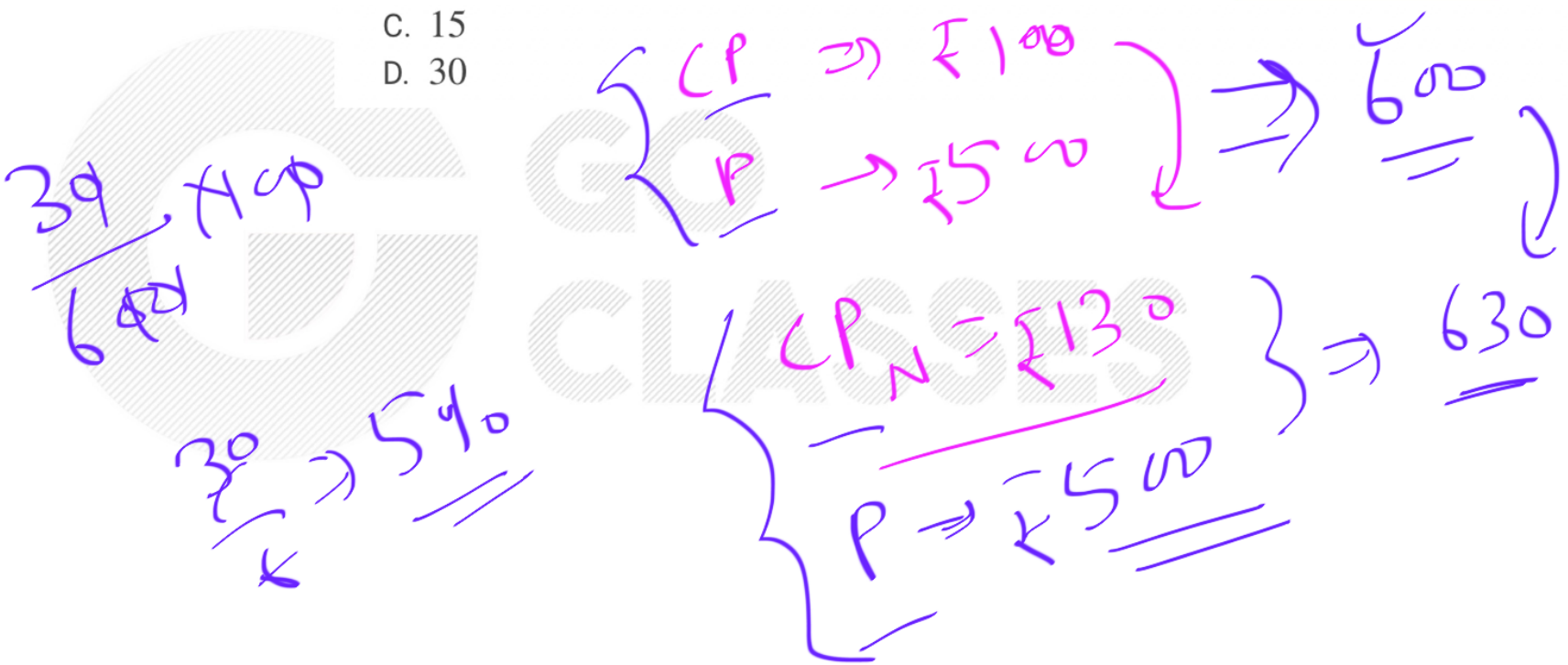
A. 25
B. 12.5
C. 10
D. 5

Gate 2021 CSE

Q.2 A firm is selling its product at Rs. 60 per unit. The total cost of production is Rs. 100 and firm is earning total profit of Rs. 500. Later, the total cost increased by 30%. By what percentage the price should be increased to maintained the same profit level.

A. 5
B. 10
C. 15
D. 30

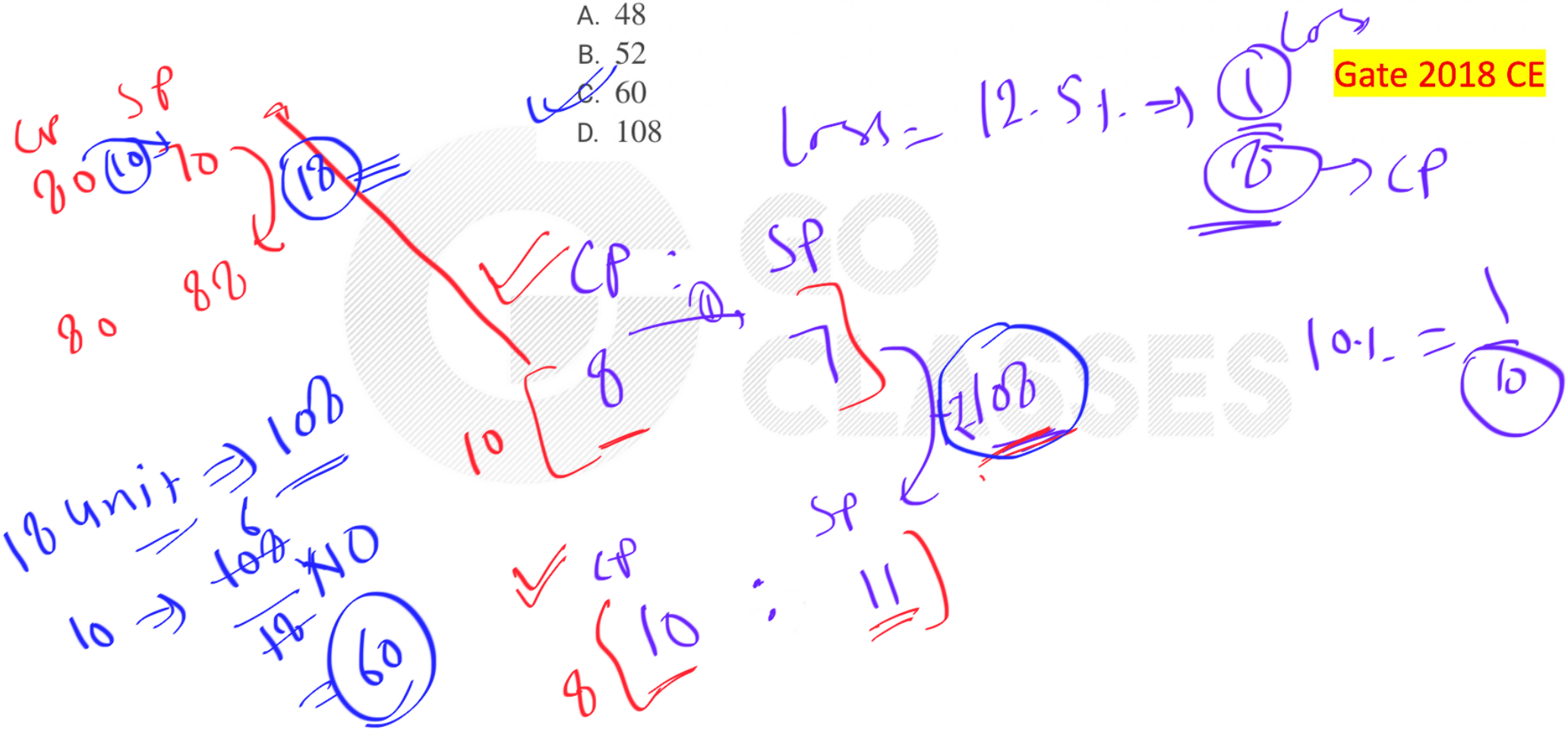
Gate 2013 CE



Q.3 A fruit seller sold a basket of fruits at 12.5% loss. Had he sold it for Rs. 108 more, he would have made a 10% gain. What is the loss in Rupees incurred by the fruit seller?

A. 48
B. 52
C. 60
D. 108

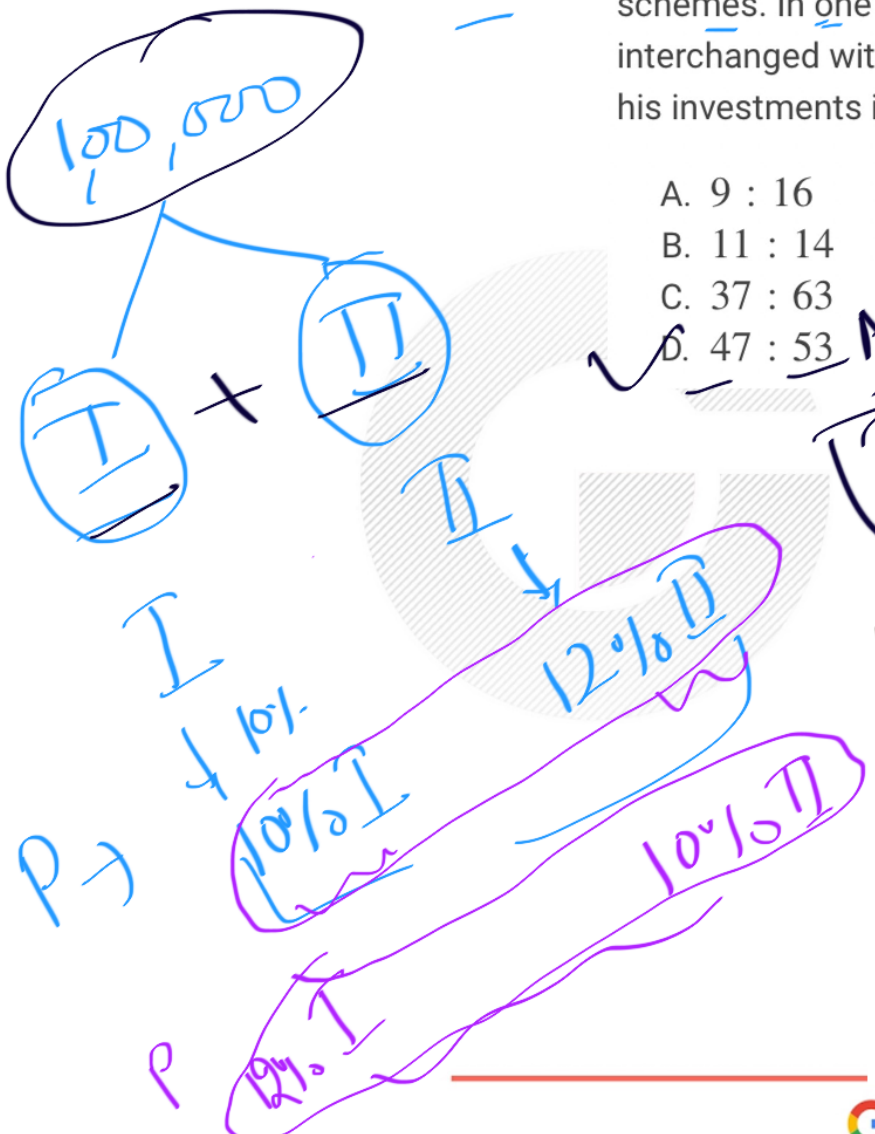
Gate 2018 CE



Q.4 A person divided an amount of Rs. 100,000 into two parts and invested in two different schemes. In one he got 10% profit and in the other he got 12%. If the profit percentages are interchanged with these investments he would have got Rs. 120 less. Find the ratio between his investments in the two schemes.

A. 9 : 16
B. 11 : 14
C. 37 : 63
D. 47 : 53

Gate 2019 ME



I = 47K

P, L & D

(10% I + 12% II) − (12% I + 10% II) = 120

−2% I + 2% II = 120

(II − I) = 120

2% = 120

1% = 60

II − I = 6000

I + II = 100000

II − I = 6000

II = 53K