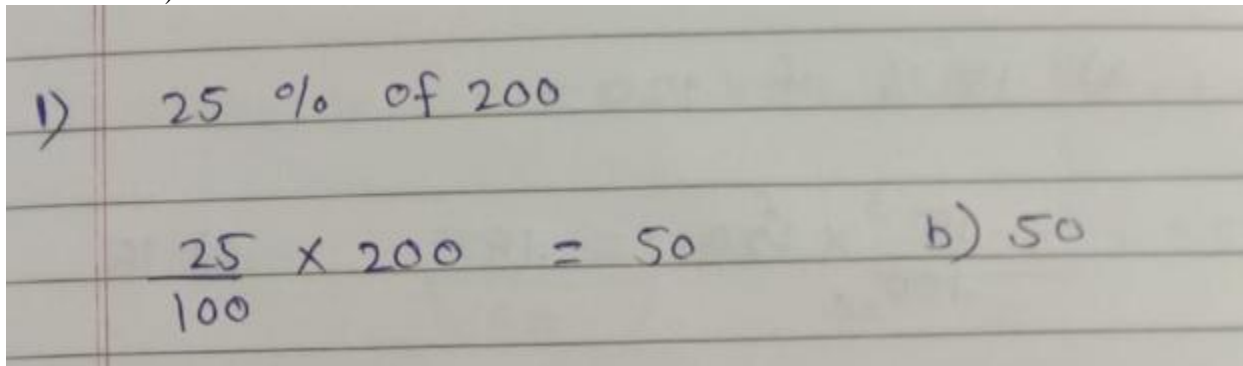


Topic: Percentage & Profit & Loss question Bank
Deadline: Monday 10th March

Name: Mansi Patil_KH
PRN No. 250240320059

1. What is 25% of 200?

- a) 25
- b) 50**
- c) 75
- d) 100



Handwritten solution for question 1:

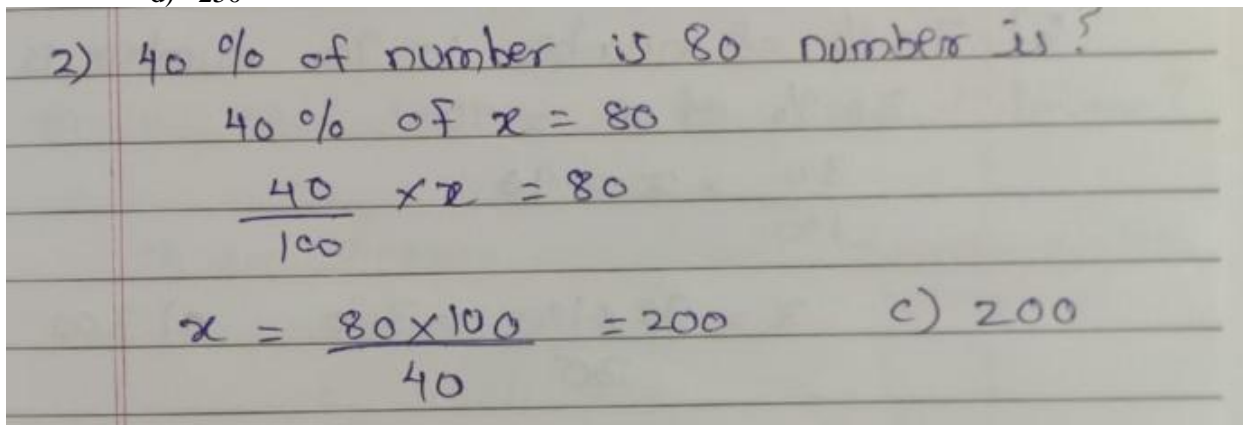
1) 25 % of 200

$$\frac{25}{100} \times 200 = 50$$

b) 50

2. If 40% of a number is 80, what is the number?

- a) 100\
- b) 150\
- c) 200**
- d) 250



Handwritten solution for question 2:

2) 40 % of number is 80 number is?

$$40 \% \text{ of } x = 80$$
$$\frac{40}{100} \times x = 80$$
$$x = \frac{80 \times 100}{40} = 200$$

c) 200

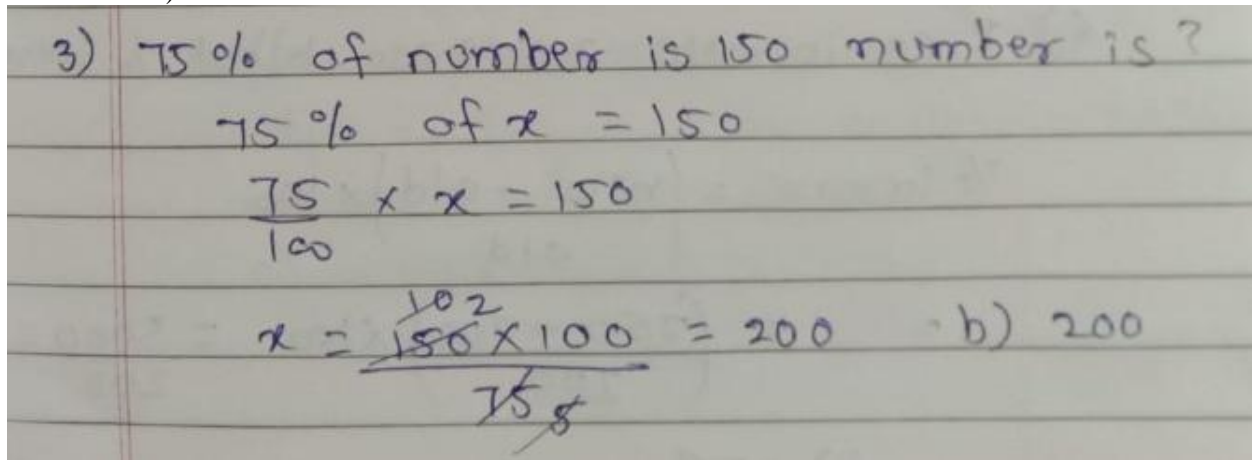
3. 75% of a number is 150. What is the number?

a) 175

b) 200

c) 225\

d) 250



Handwritten solution for question 3:

3) 75% of number is 150 number is ?

$$75\% \text{ of } x = 150$$
$$\frac{75}{100} \times x = 150$$
$$x = \frac{150 \times 100}{75} = 200 \quad \text{b) 200}$$

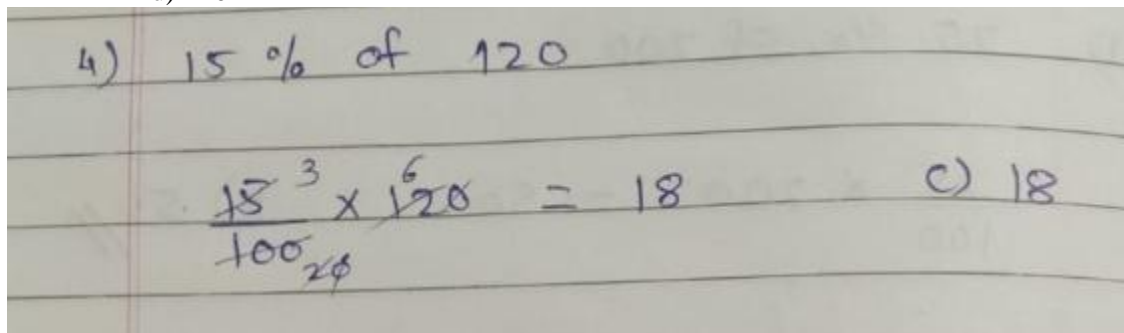
4. What is 15% of 120?

a) 12\

b) 15\

c) 18

d) 20



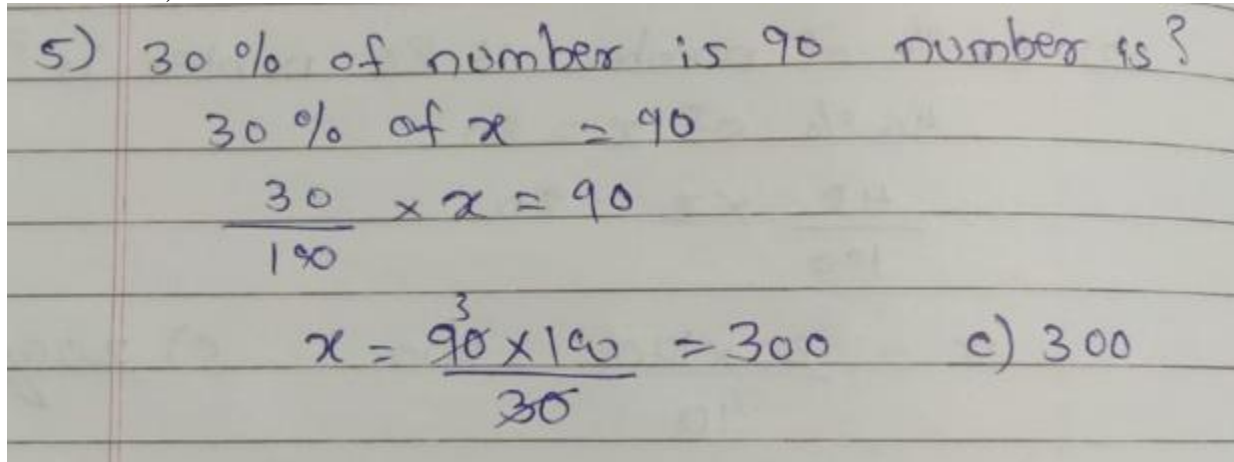
Handwritten solution for question 4:

4) 15% of 120

$$\frac{15}{100} \times 120 = 18 \quad \text{c) 18}$$

5. If 30% of a number is 90, then the number is:\

- a) 200\
- b) 250\
- c) 300
- d) 350



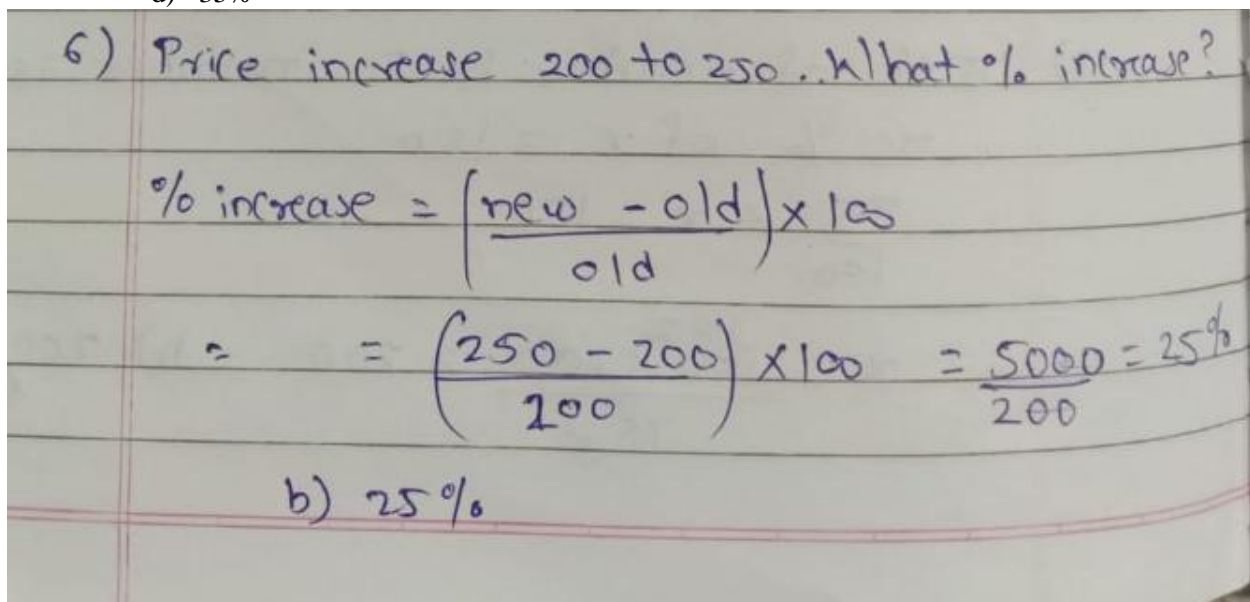
Handwritten solution for question 5:

5) 30 % of number is 90 number is ?

$$30 \% \text{ of } x = 90$$
$$\frac{30}{100} \times x = 90$$
$$x = \frac{90 \times 100}{30} = 300 \quad \text{c) 300}$$

6. The price of a product increases from ₹200 to ₹250. What is the percentage increase?\

- a) 20%\
- b) 25%
- c) 30%\
- d) 35%



Handwritten solution for question 6:

6) Price increase 200 to 250 .. what % increase?

$$\% \text{ increase} = \left(\frac{\text{new} - \text{old}}{\text{old}} \right) \times 100$$
$$= \left(\frac{250 - 200}{200} \right) \times 100 = \frac{5000}{200} = 25\%$$

b) 25%

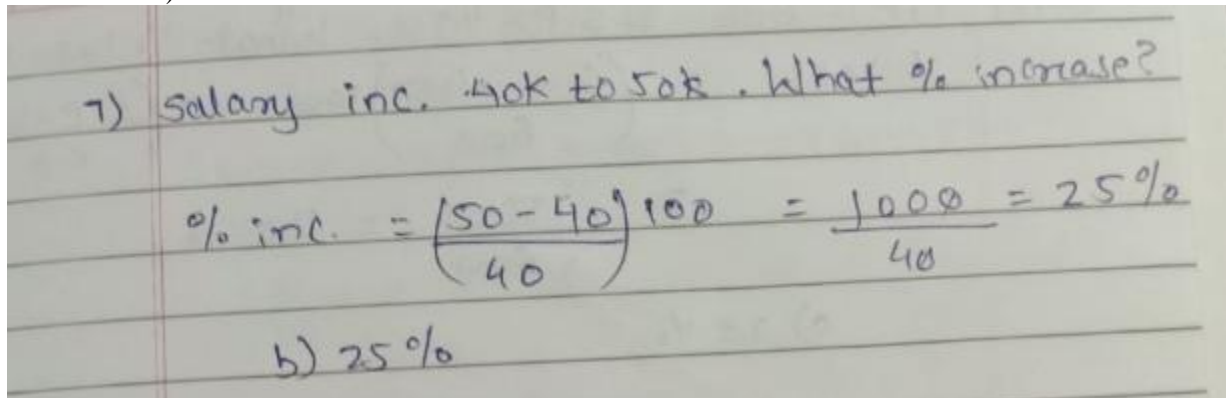
7. A salary increases from ₹40,000 to ₹50,000. What is the percentage increase?\

a) 20%\

b) 25%\

c) 30%\

d) 35%



Handwritten solution for question 7:

7) salary inc. 40k to 50k. What % increase?

$$\% \text{ inc.} = \left(\frac{50 - 40}{40} \right) 100 = \frac{1000}{40} = 25\%$$

b) 25%

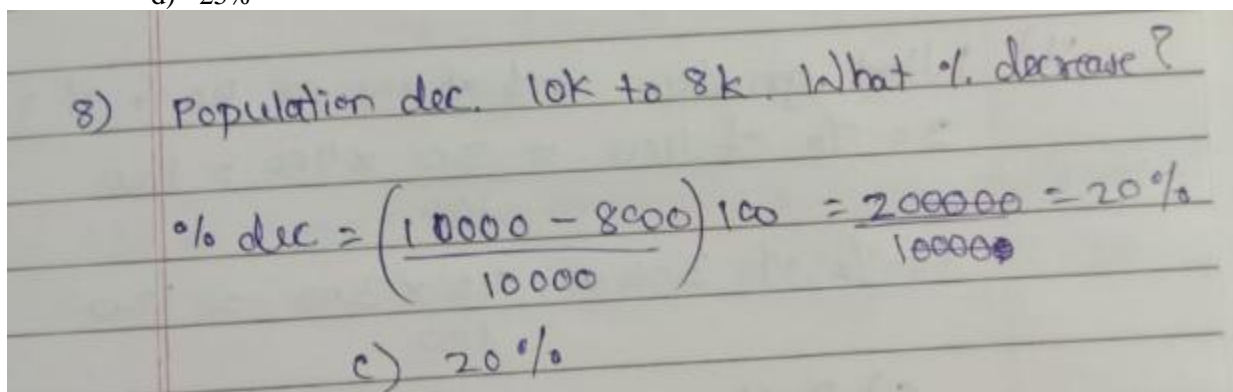
8. The population of a town decreased from 10,000 to 8,000. What is the percentage decrease?\

a) 10%\

b) 15%\

c) 20%\

d) 25%



Handwritten solution for question 8:

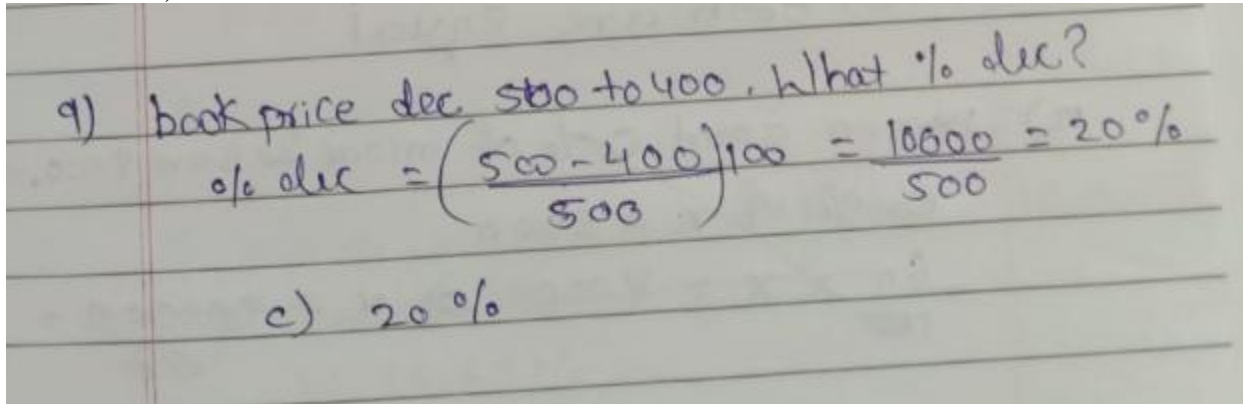
8) Population dec. 10k to 8k. What % decrease?

$$\% \text{ dec} = \left(\frac{10000 - 8000}{10000} \right) 100 = \frac{200000}{100000} = 20\%$$

c) 20%

9. A book's price drops from ₹500 to ₹400. What is the percentage decrease?

- a) 10%
- b) 15%
- c) 20%
- d) 25%



Handwritten solution for question 9:

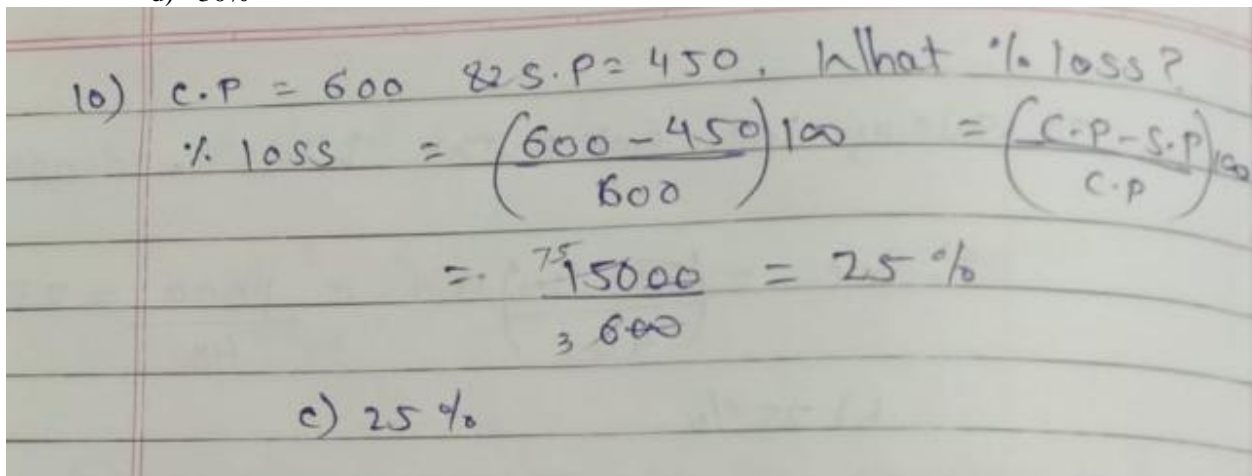
9) book price dec 500 to 400. what % dec?

$$\% \text{ dec} = \left(\frac{500 - 400}{500} \right) 100 = \frac{10000}{500} = 20\%$$

c) 20%

10. If the cost price of an item is ₹600 and the selling price is ₹450, what is the percentage loss?

- a) 20%
- b) 22.5%
- c) 25%
- d) 30%



Handwritten solution for question 10:

10) C.P = 600 & S.P = 450. what % loss?

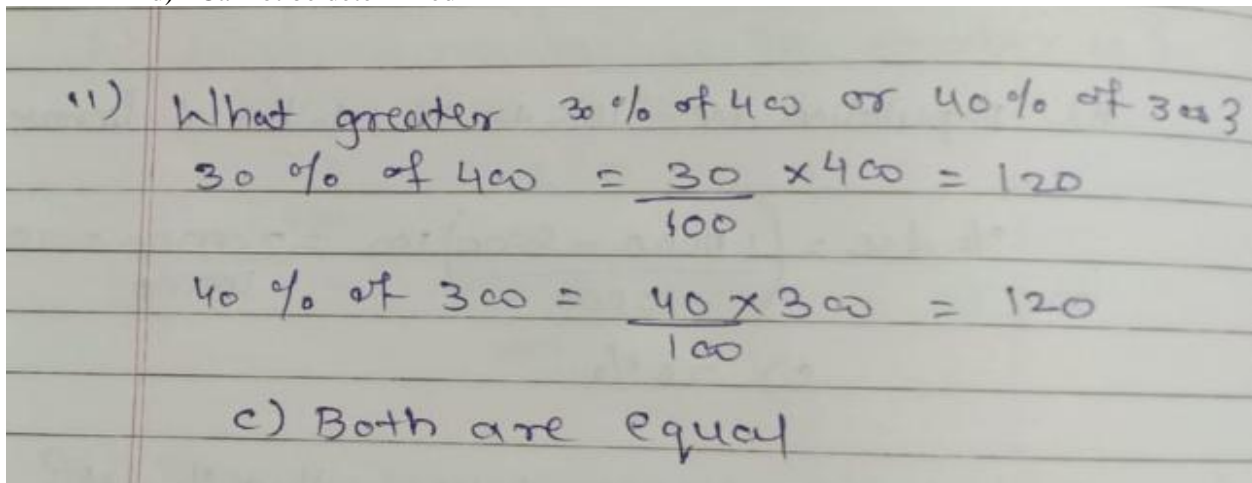
$$\% \text{ loss} = \left(\frac{600 - 450}{600} \right) 100 = \left(\frac{C.P - S.P}{C.P} \right) 100$$
$$= \frac{75}{360} 100 = 25\%$$

c) 25%

1. ### **Section 3: Percentage Comparison**

11. Which is greater: 30% of 400 or 40% of 300?

- a) 30% of 400\
- b) 40% of 300\
- c) Both are equal\
- d) Cannot be determined



Handwritten solution for question 11:

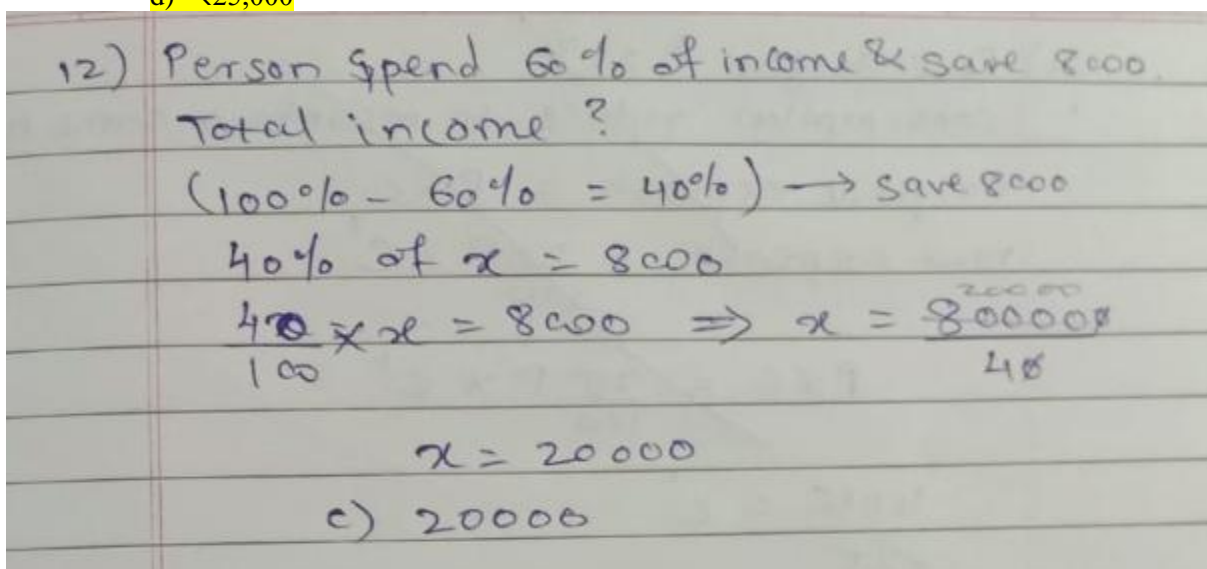
11) What greater 30% of 400 or 40% of 300?

$$30\% \text{ of } 400 = \frac{30}{100} \times 400 = 120$$
$$40\% \text{ of } 300 = \frac{40}{100} \times 300 = 120$$

c) Both are equal

12. A person spends 60% of his income and saves ₹8,000. What is his total income?

- a) ₹15,000\
- b) ₹18,000\
- c) ₹20,000\
- d) ₹25,000



Handwritten solution for question 12:

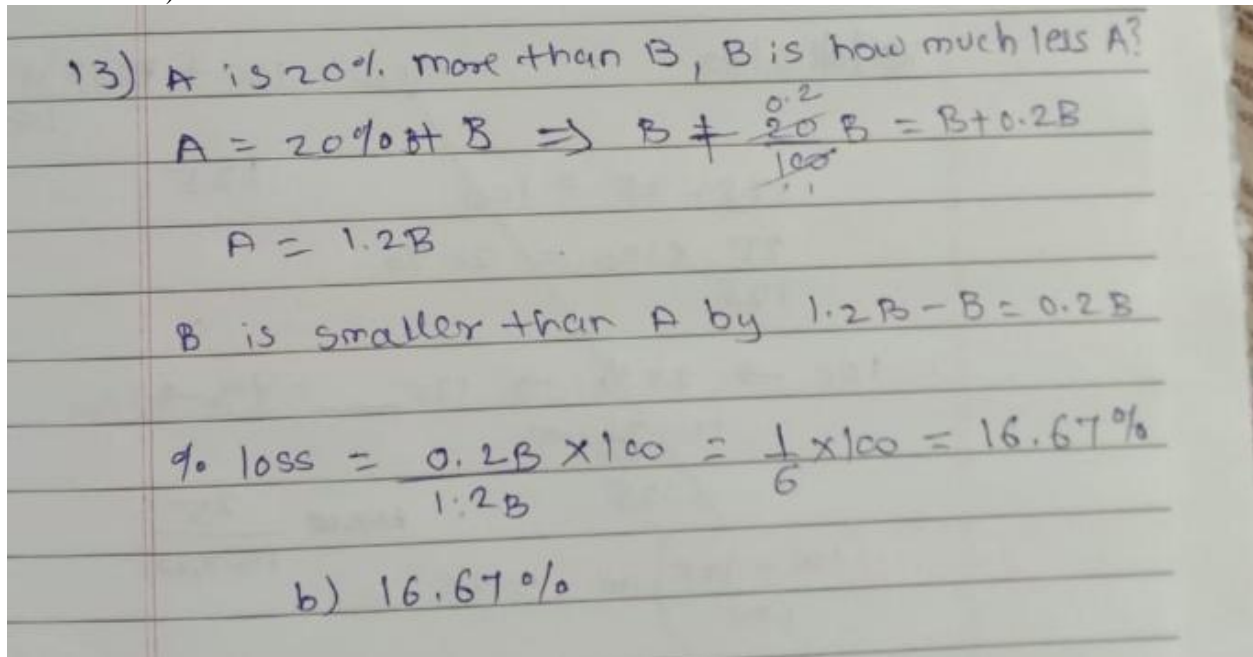
12) Person spend 60% of income & save 8000.
Total income ?

$$(100\% - 60\% = 40\%) \rightarrow \text{save } 8000$$
$$40\% \text{ of } x = 8000$$
$$\frac{40}{100} \times x = 8000 \Rightarrow x = \frac{8000 \times 100}{40}$$
$$x = 20000$$

c) 20000

13. If A is 20% more than B, then B is how much less than A?

- a) 20%
- b) 16.67%
- c) 25%
- d) 10%



13) A is 20% more than B, B is how much less A?

$$A = 20\% \text{ of } B \Rightarrow B + \frac{20}{100} B = B + 0.2B$$
$$A = 1.2B$$

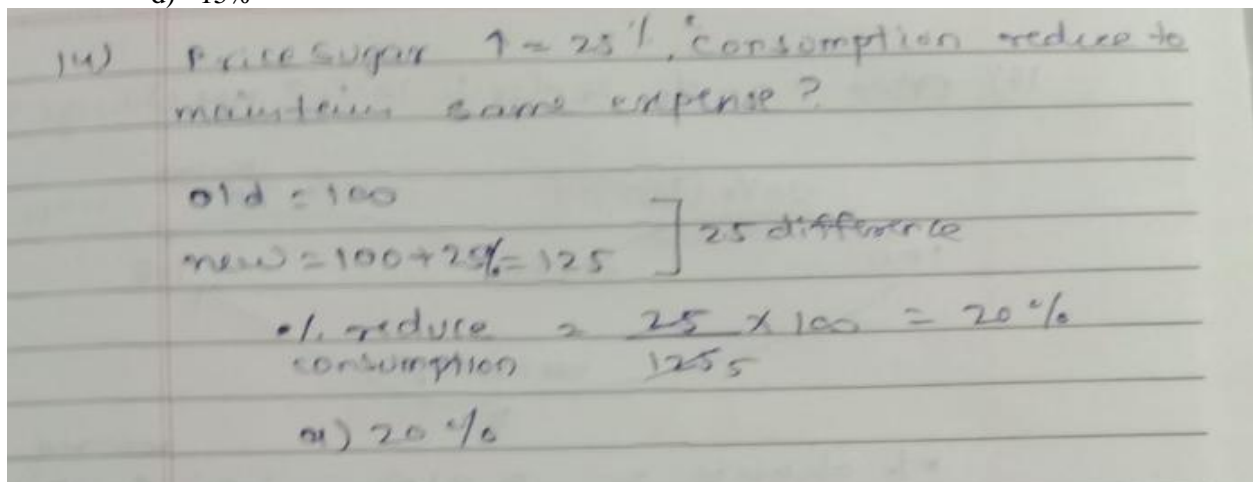
B is smaller than A by $1.2B - B = 0.2B$

$$\% \text{ loss} = \frac{0.2B \times 100}{1.2B} = \frac{1}{6} \times 100 = 16.67\%$$

b) 16.67%

14. If the price of sugar is increased by 25%, by how much should the consumption be reduced to maintain the same expense?

- a) 20%
- b) 25%
- c) 30%
- d) 15%



14) Price sugar ↑ = 25%, consumption reduce to maintain same expense?

old = 100
new = 100 + 25% = 125 } 25 difference

$$\% \text{ reduce consumption} = \frac{25 \times 100}{125} = 20\%$$

a) 20%

15. If A's income is 40% more than B's income, then B's income is what percentage less than A's?

a) 28.57%

b) 30%

c) 33.33%

d) 40%

15) A income ^{40%} more than B. B income % less than A?

B income assume 100%

$$A \text{ income} = 100\% \times \left(\frac{100+40}{100} \right) = 140\%$$

$$\left(\frac{140\% - 100\%}{140\%} \right) 100 = \frac{40 \times 100}{140} = \frac{400}{14} = 28.57\%$$

a) 28.57%

16. The price of an item is increased by 20% and then decreased by 10%. What is the net percentage change?

a) 8% increase

b) 8% decrease

c) 10% increase

d) 10% decrease

16) price ↑ 20% & dec ↓ 10%? net change %?

100 $\xrightarrow{20\% \text{ (} \frac{20 \times 100}{100} \text{) increase}$ 120 $\xrightarrow{-10\% \text{ (} \frac{10 \times 120}{100} \text{) decrease}$ 108

net change 8

$$\% \text{ change} = \frac{8 \times 100}{100} = 8\%$$

a) 8% increase.

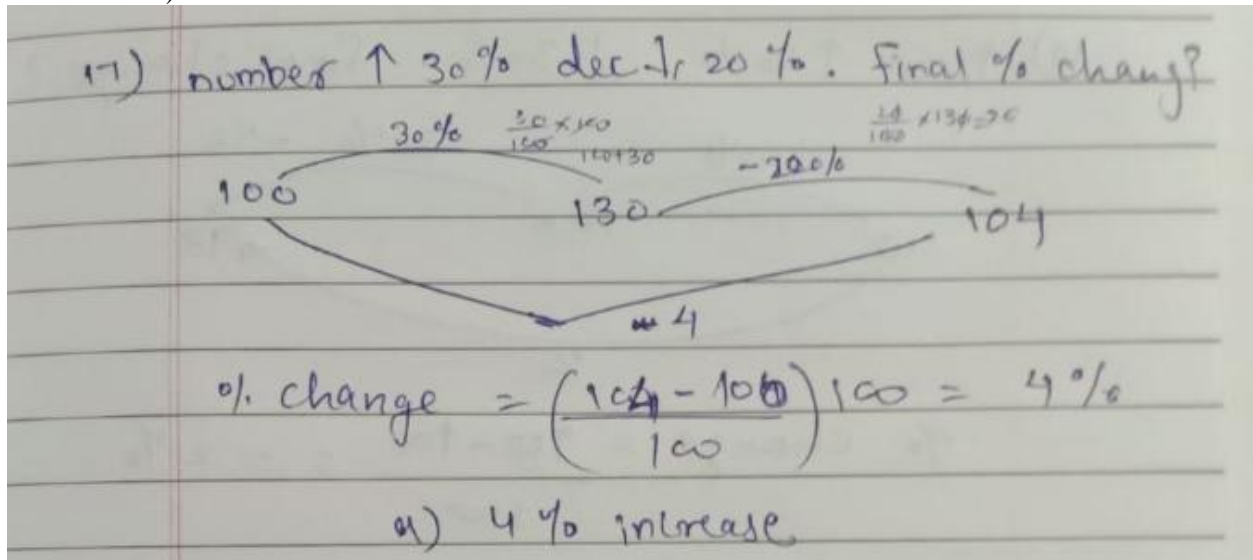
17. A number is increased by 30% and then decreased by 20%. What is the final percentage change?

a) 4% increase

b) 8% increase

c) 10% increase

d) 12% increase



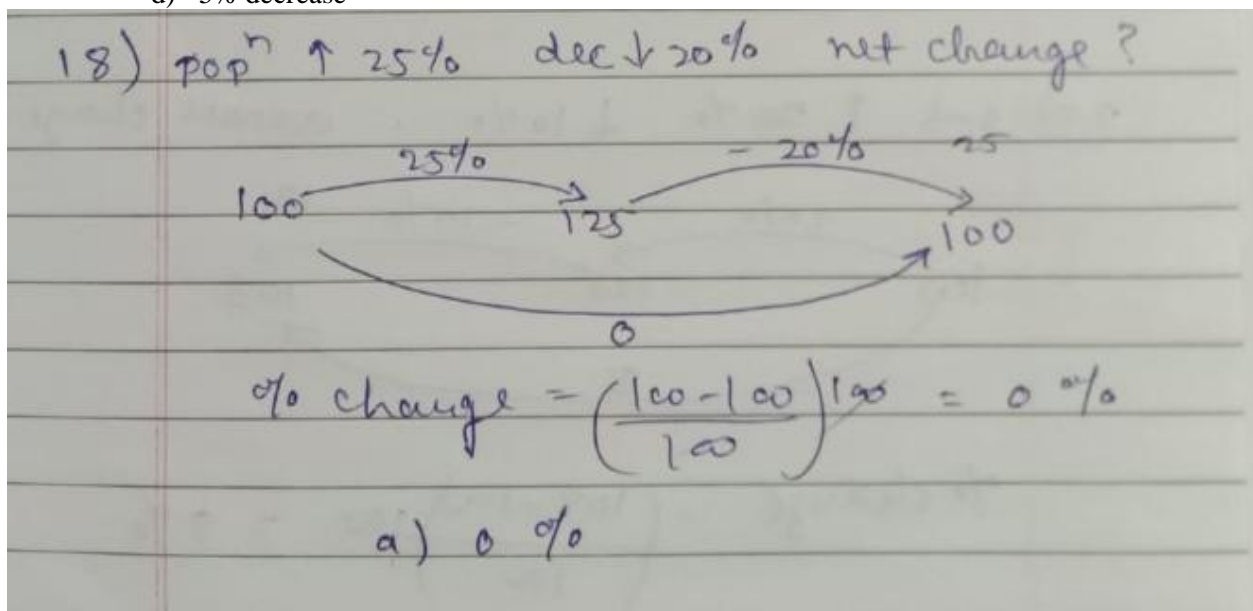
18. If the population of a city increases by 25% and then decreases by 20%, what is the net percentage change?

a) 0%

b) 5% increase

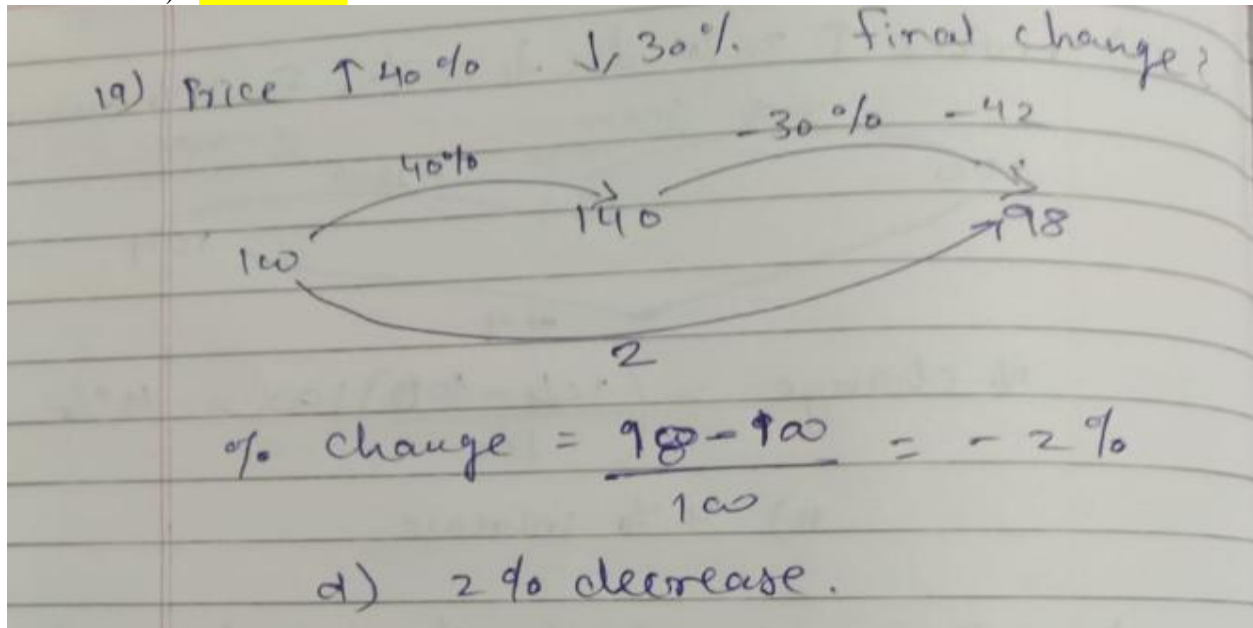
c) 10% decrease

d) 5% decrease



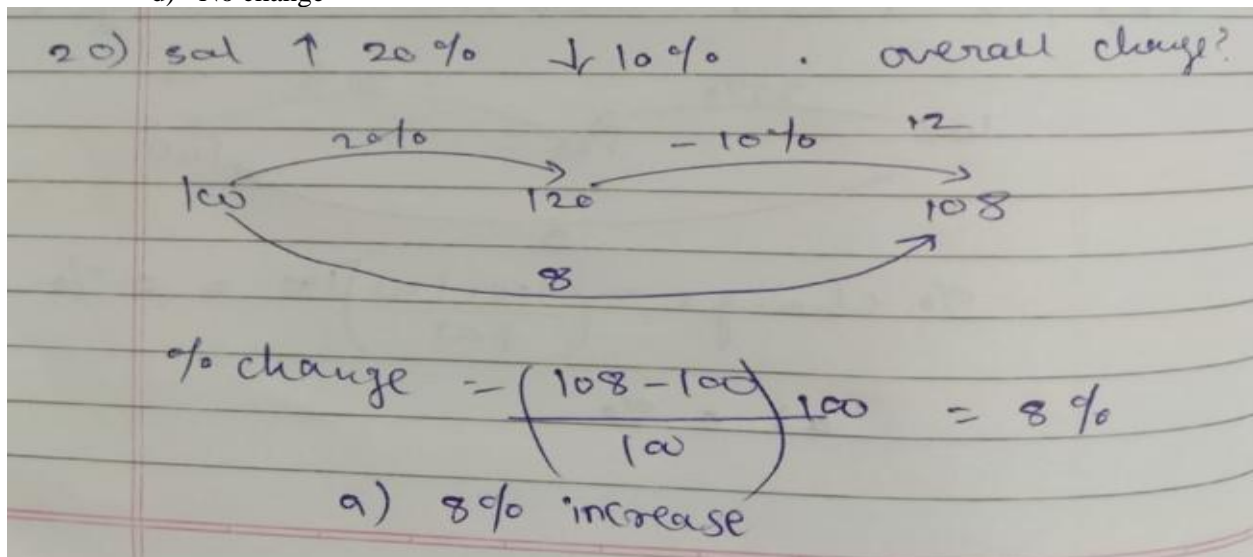
19. If a price increases by 40% and then decreases by 30%, the final change is:\

- a) 2% increase\
- b) 10% increase\
- c) 10% decrease\
- d) 2% decrease



20. The salary of a person is first increased by 20% and then decreased by 10%. What is the overall percentage change?\

- a) 8% increase\
- b) 10% increase\
- c) 10% decrease\
- d) No change



21. If an article is sold at a profit of 25%, then the selling price is what percentage of the cost price?

- a) 100%
- b) 125%
- c) 150%
- d) 175%

article sold profit 25%. selling Price
21) is what % of cost price?
 $\text{profit} = 25\% \text{ of } C = 0.25C$
 $S.P = C + P = C + 0.25C = 1.25C$
 $S.P \text{ \% of } C.P = 1.25 \times 100 = 125\%$
b) 125%

22. A shopkeeper allows a discount of 10% on the marked price and still makes a profit of 8%. If the marked price is ₹500, what is the cost price?

- a) ₹400
- b) ₹420
- c) ₹450
- d) ₹460

22) discount 10% on m.p & make profit 8%. m.p is 500
 $C.P = ?$ $S.P = 450$
 $m.p = 500$
 $d = 10\%$
 $S.P = 500 - 10\% \text{ of } 500 = 500 - \frac{10 \times 500}{100} = 500 - 50 = 450$
 $\text{Profit} = 8\%$
 $C.P = \frac{S.P}{1 + \frac{\text{Profit}\%}{100}} = \frac{450}{1 + \frac{8}{100}} = \frac{450 \times 100}{108} = 416.666$
 $\frac{108}{27} = 4$
 $416.666 \div 4 = 104.1665$
b) 420 Rs

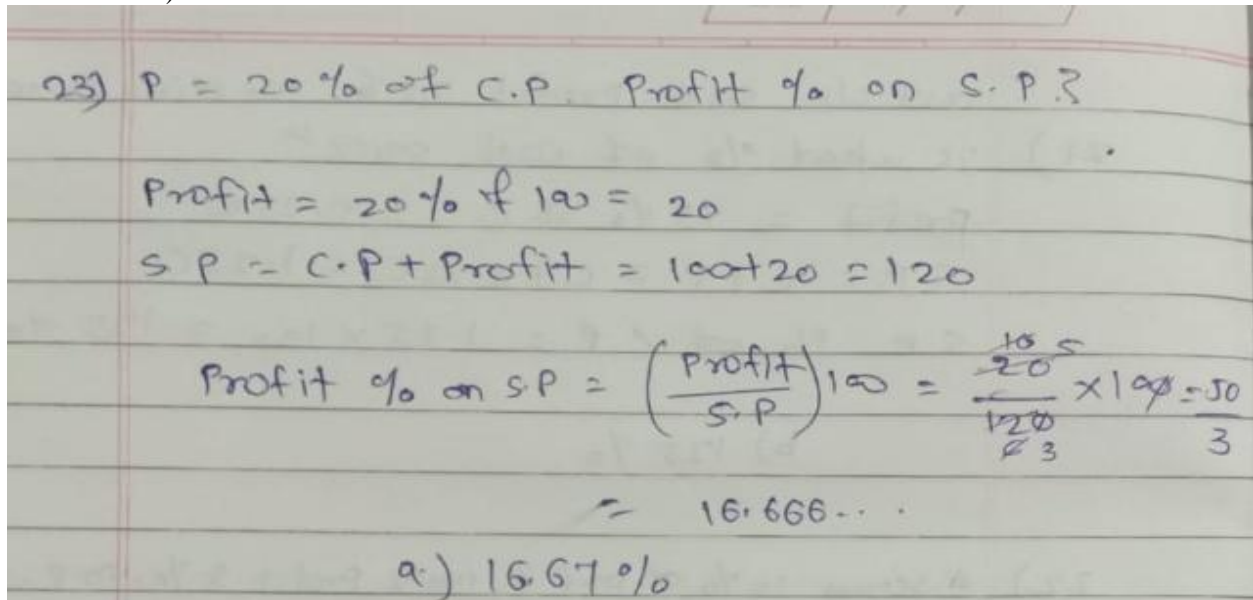
23. If the profit is 20% of the cost price, then what is the profit percentage on the selling price?

a) 16.67%

b) 18%

c) 20%

d) 22%



23) $P = 20\%$ of C.P. Profit % on S.P.?

$$\text{Profit} = 20\% \text{ of } 100 = 20$$
$$\text{S.P.} = \text{C.P.} + \text{Profit} = 100 + 20 = 120$$
$$\text{Profit \% on S.P.} = \left(\frac{\text{Profit}}{\text{S.P.}} \right) 100 = \frac{20}{120} \times 100 = \frac{50}{3} = 16.666\ldots$$

a) 16.67%

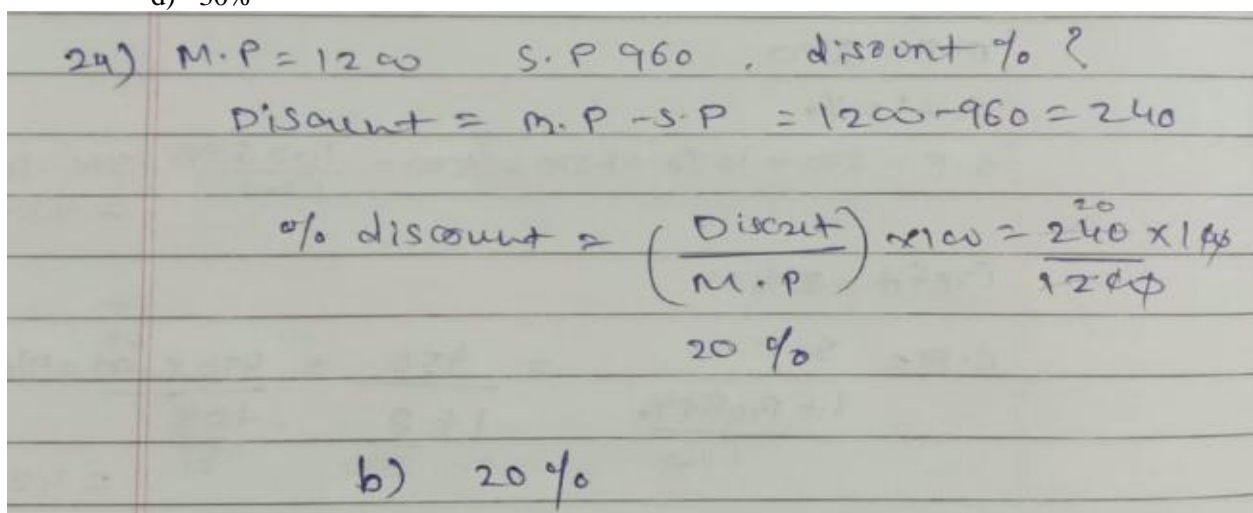
24. A product is marked at ₹1,200 and sold for ₹960. What is the percentage discount given?

a) 15%

b) 20%

c) 25%

d) 30%



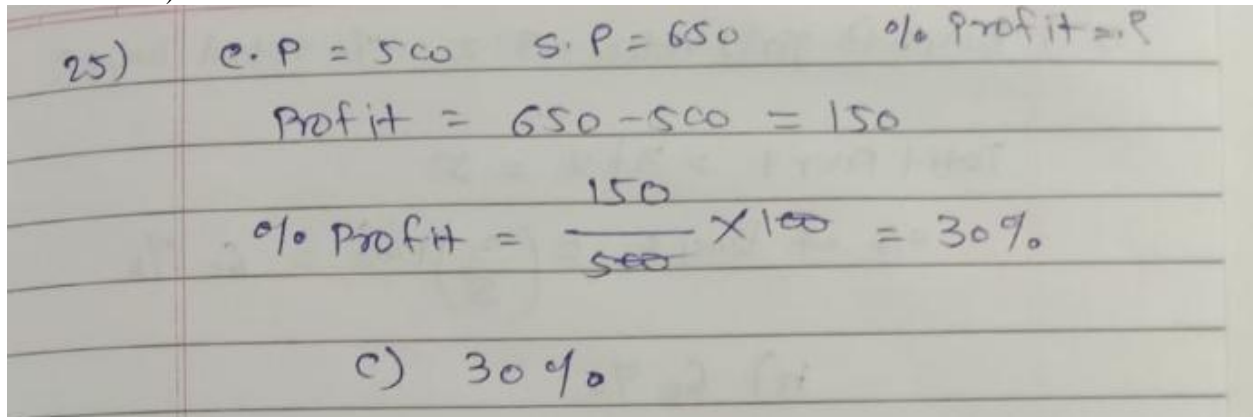
24) M.P. = 1200 S.P. 960 . discount % ?

$$\text{Discount} = \text{M.P.} - \text{S.P.} = 1200 - 960 = 240$$
$$\% \text{ discount} = \left(\frac{\text{Discount}}{\text{M.P.}} \right) \times 100 = \frac{240}{1200} \times 100 = 20\%$$

b) 20%

25. If an article is bought for ₹500 and sold for ₹650, what is the percentage profit?

- a) 20%
- b) 25%
- c) 30%
- d) 35%



Handwritten solution for question 25:

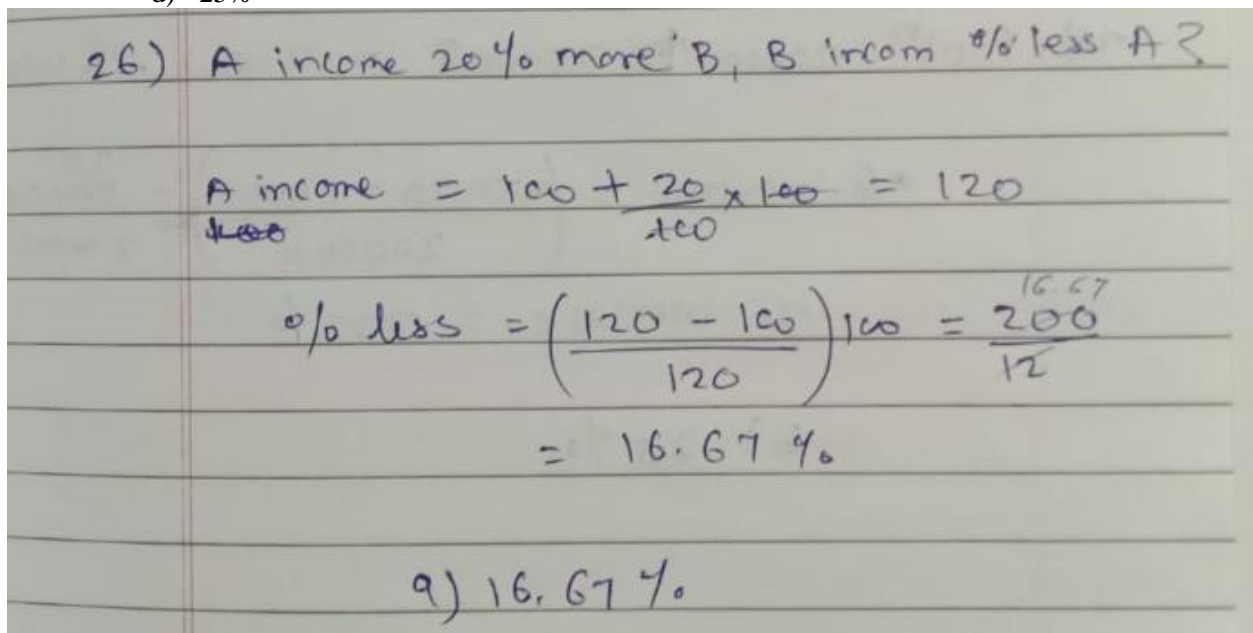
25) C.P = 500 S.P = 650 % Profit = ?

$$\text{Profit} = 650 - 500 = 150$$
$$\% \text{ Profit} = \frac{150}{500} \times 100 = 30\%$$

c) 30%

26. If A's income is 20% more than B's, then B's income is what percentage less than A's?

- a) 16.67%
- b) 18%
- c) 20%
- d) 25%



Handwritten solution for question 26:

26) A income 20% more B, B income % less A?

$$\text{A income} = 100 + \frac{20}{100} \times 100 = 120$$
$$\% \text{ less} = \left(\frac{120 - 100}{120} \right) 100 = \frac{200}{12} = 16.67\%$$

a) 16.67%

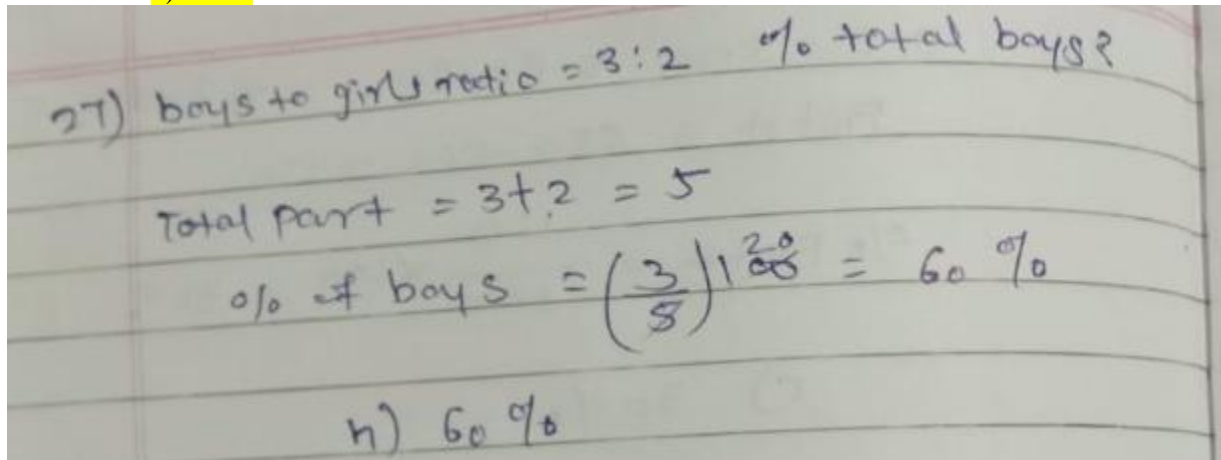
27. If the ratio of boys to girls in a school is 3:2, what percentage of the total students are boys?

e) 30%

f) 40%

g) 50%

h) 60%



Handwritten solution for question 27:

27) boys to girls ratio = 3:2 % total boys?

Total part = 3 + 2 = 5

% of boys = $\left(\frac{3}{5}\right) \times 100 = 60\%$

h) 60%

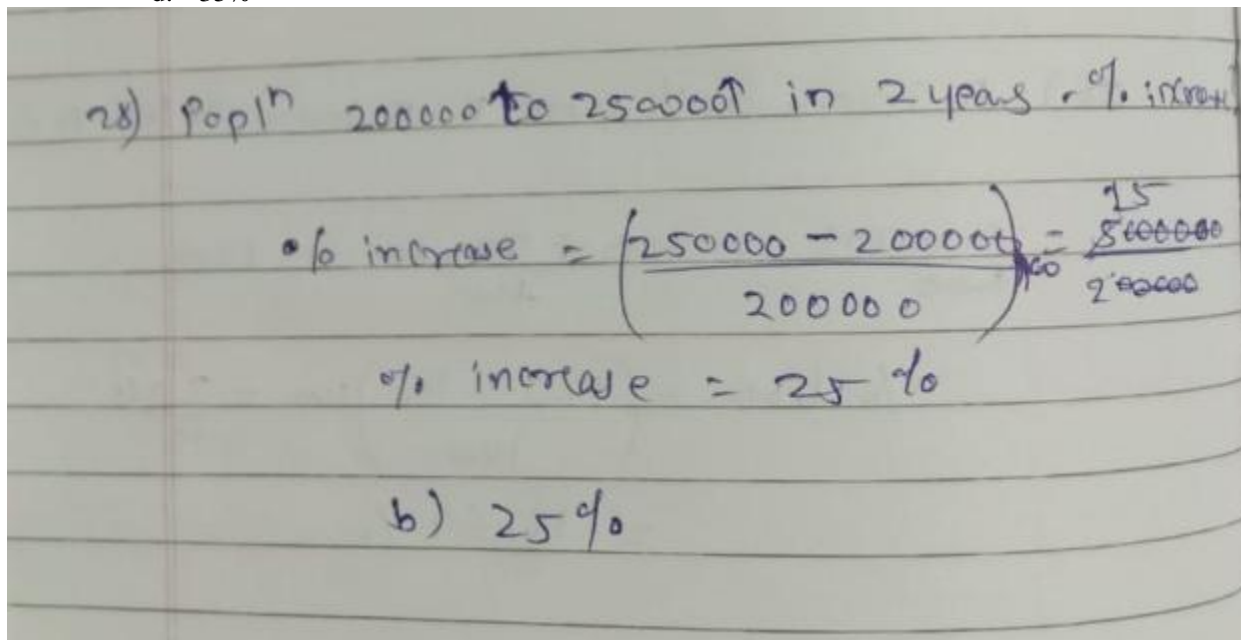
28. A city's population increased from 2,00,000 to 2,50,000 in 2 years. What is the percentage increase?

a. 20%

b. 25%

c. 30%

d. 35%



Handwritten solution for question 28:

28) Poplⁿ 200000 to 250000 in 2 years. % increase?

% increase = $\left(\frac{250000 - 200000}{200000}\right) \times 100 = \frac{50000}{200000} \times 100$

% increase = 25%

b) 25%

29 In an election, a candidate gets 65% of the total votes and wins by 3000 votes. How many total votes were cast?

- a. 5000
- b. 6000
- c. 8000
- d. 9000

29) 65% total votes & wins by 3000 votes. total v?

Winner = 65% loser = 35%

Total Winner - loser = 3000

$65\% - 35\% = 30\%$

$30\% = 3000$

Total votes = $\frac{3000}{30} \times 100 = 10000$

30 The price of an article is reduced by 30%. By what percentage must the new price be increased to restore the original price?

- a. 30%
- b. 42.85%
- c. 50%
- d. 60%

30) price reduce by 30%. % new price ↑ to restore orig price

new price = $100 - \left(\frac{30}{100} \times 100 \right) = 70$

original price = new $\left(1 + \frac{x}{100} \right) = 70 \left(1 + \frac{x}{100} \right)$

$100 = 70 \left(1 + \frac{x}{100} \right) \Rightarrow \frac{100}{70} = 1 + \frac{x}{100}$

$\frac{100}{70} - 1 = \frac{x}{100} \Rightarrow \frac{3000}{700} = x$

42.85

b) 42.85%

31 If a number is increased by 50% and then decreased by 50%, what is the net percentage change?

- a. 0%
- b. 25% decrease
- c. 50% decrease
- d. 75% decrease

31) no. $\uparrow 50\%$ $\downarrow 50\%$, % change?

100 $\xrightarrow{50\%}$ 150 $\xrightarrow{-50\%}$ 75

25

% change = $\left(\frac{75 - 100}{100} \right) 100 = -25\%$

b) -25% decrease

32 If A is 20% taller than B, then B is shorter than A by:

- a. 16.67%
- b. 18%
- c. 20%
- d. 25%

32) A 20% taller B, B is shorter than A. %?

$A = H + \frac{20}{100}H = 1.20H$

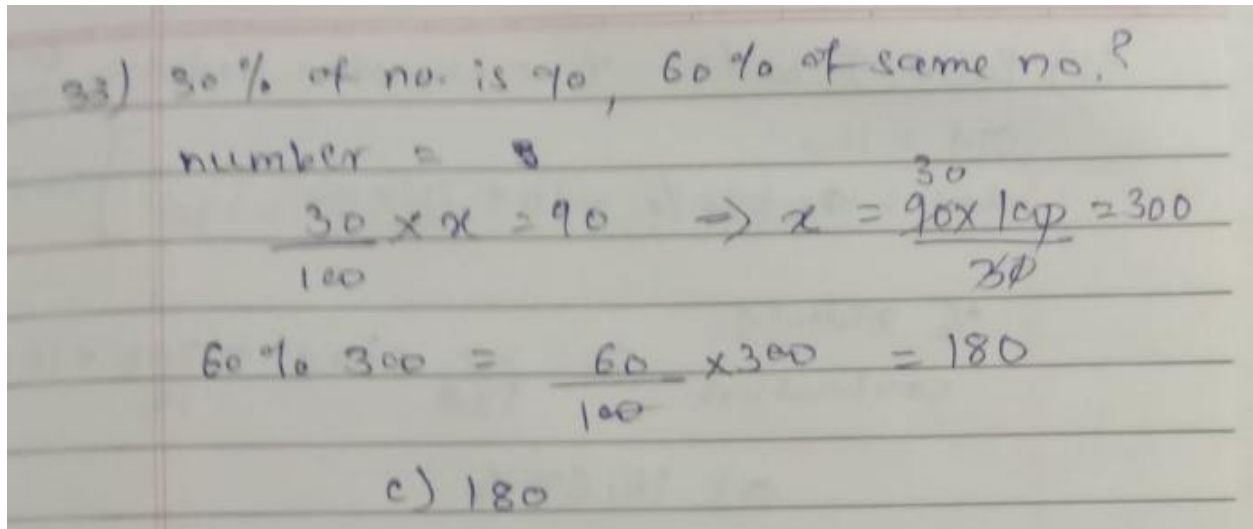
% shorter = $\left(\frac{A - B}{A} \right) 100 = \left(\frac{1.20H - H}{1.20H} \right) 100$

$= \left(\frac{0.20H}{1.20H} \right) 100 = 16.67\%$

a) 16.67%

33 If 30% of a number is 90, what is 60% of the same number?

- a. 120
- b. 150
- c. 180
- d. 200



Handwritten solution for question 33:

33) 30% of no. is 90, 60% of same no.?

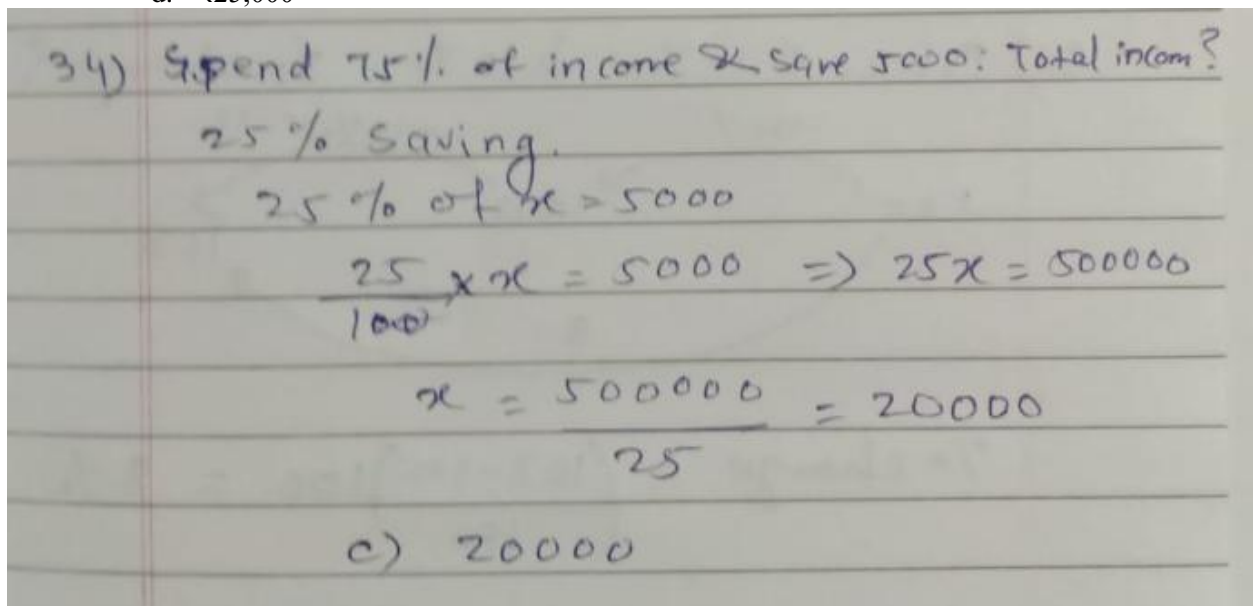
number = x

$$\frac{30}{100} \times x = 90 \Rightarrow x = \frac{90 \times 100}{30} = 300$$
$$60\% \text{ of } 300 = \frac{60}{100} \times 300 = 180$$

c) 180

34 A person spends 75% of his income and saves ₹5000. What is his total income?

- a. ₹15,000
- b. ₹18,000
- c. ₹20,000
- d. ₹25,000



Handwritten solution for question 34:

34) Spend 75% of income & save 5000: Total income?

25% saving.

$$25\% \text{ of } x = 5000$$
$$\frac{25}{100} \times x = 5000 \Rightarrow 25x = 500000$$
$$x = \frac{500000}{25} = 20000$$

c) 20000

35 The price of petrol increases by 20%. By what percentage should consumption be reduced to maintain the same expense?

a. 16.67%

b. 18%

c. 20%

d. 25%

35) Price \uparrow 20%. % consumption reduce to same expense

old = 100
 new = $100 + 20\% = 100 + \frac{20}{100} \times 100 = 120$ } 20 diff

% reduce consumption = $\frac{20}{120} \times 100 = \frac{200}{12} = 16.67\%$

a) 16.67%

36 The price of a TV was first increased by 20% and then decreased by 10%. What is the overall percentage change?

a. 8% increase

b. 10% increase

c. 10% decrease

d. No change

36) Price \uparrow 20% \downarrow 10% . % change ?

100 $\xrightarrow{+20\%}$ 120 $\xrightarrow{-10\%}$ 108

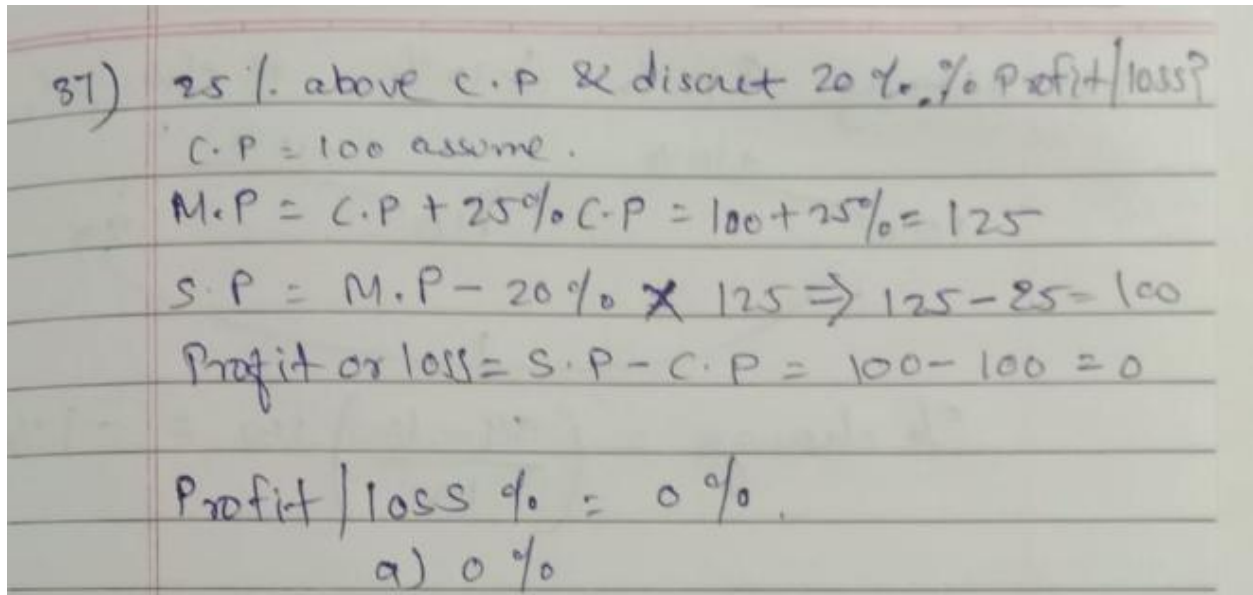
8

% change = $\frac{(108-100)}{100} \times 100 = 8\%$

a) 8% increase

37 A shopkeeper marks an item 25% above the cost price and gives a 20% discount. What is his profit/loss percentage?

- a. 0%
- b. 2% profit
- c. 5% profit
- d. 10% loss



37) 25% above C.P & discount 20%. % Profit/Loss?

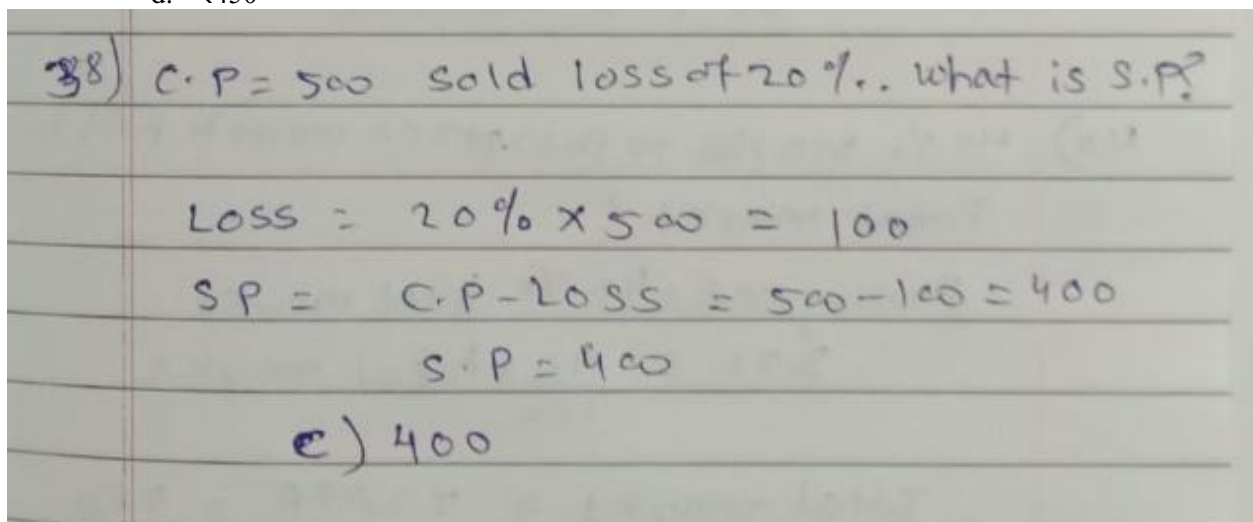
C.P = 100 assume.

$$M.P = C.P + 25\% \times C.P = 100 + 25 = 125$$
$$S.P = M.P - 20\% \times 125 \Rightarrow 125 - 25 = 100$$
$$\text{Profit or loss} = S.P - C.P = 100 - 100 = 0$$
$$\text{Profit/Loss \%} = 0\%$$

a) 0%

38 If the cost price of an article is ₹500 and it is sold at a loss of 20%, what is the selling price?

- a. ₹350
- b. ₹375
- c. ₹400
- d. ₹450



38) C.P = 500 sold loss of 20%. what is S.P?

$$\text{Loss} = 20\% \times 500 = 100$$
$$S.P = C.P - \text{Loss} = 500 - 100 = 400$$
$$S.P = 400$$

c) 400

39 If a salary is increased by 10% and then decreased by 10%, what is the final percentage change?

- a. 0%
- b. 1% decrease
- c. 1% increase
- d. 2% decrease

39) salary $\uparrow 10\%$ $\downarrow 10\%$. % change?

100 $\xrightarrow{+10\%}$ 110 $\xrightarrow{-10\%}$ 99

1

% change = $\left(\frac{99 - 100}{100} \right) 100 = -1\%$

b) 1% decrease

40 A student needs 40% marks to pass. He gets 200 marks and fails by 20 marks. What are the total marks?

- a. 500
- b. 550
- c. 600
- d. 650

40) 40% marks to pass. got 200 marks & fail by 20 marks
Total marks?

Passing mark = 40% total marks
 $220 = \frac{40}{100} \times \text{total marks}$

Total marks = $\frac{22000}{40} = 550$

b) 550

41 A man spends 20% of his salary on rent, 30% on food, and 10% on transport. If he saves ₹18,000, what is his salary?

- a. ₹40,000
- b. ₹45,000
- c. ₹50,000
- d. ₹55,000

41) spends 20%, 30%, 10% salary. and saves 18000. Salary?

Total Salary spend = 20% + 30% + 10%
= 60%

40% is saved. ~~if~~
40% of salary saved.
40% x salary = 18000
Salary = $\frac{18000 \times 100}{40} = 45000$

b) 45000

42 The cost of an item is first increased by 30% and then decreased by 30%. What is the overall percentage change?

- a. 0%
- b. 9% decrease
- c. 9% increase
- d. 15% decrease

42) cost $\uparrow 30\%$, $\downarrow 30\%$ - overall change?

Diagram showing the change in cost:

100 $\xrightarrow{+30\%}$ 130 $\xrightarrow{-30\%}$ 91

91

% change = $\left(\frac{91 - 100}{100} \right) 100 = -9\%$

b) 9% decrease

43) The population of a town increases by 10% every year. If the current population is 10,000, what will it be after 3 years?

a) 13,310

b) 13,500

c) 14,000

d) 14,200

43) Poplⁿ ↑ 10% . Current Poplⁿ = 10000 . 3 years?

Populⁿ 1st year = $10000 + 10\% \text{ of } 10000$
 $= 10000 + \frac{10}{100} \times 10000$
 $= 10000 + 1000 = 11000$

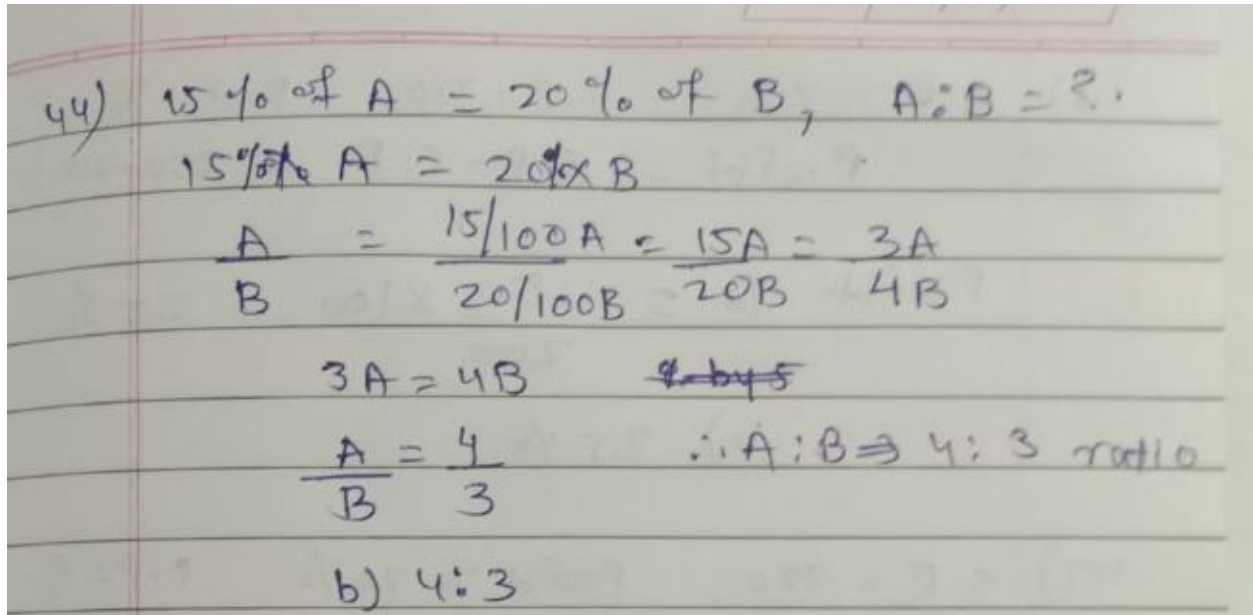
Populⁿ 2nd year = $11000 + 10\% \text{ of } 11000$
 $= 11000 + \frac{10}{100} \times 11000$
 $= 11000 + 1100 = 12100$

populⁿ 3rd year = $12100 + 10\% \text{ of } 12100$
 $= 12100 + \frac{10}{100} \times 12100$
 $= 12100 + 1210 = 13310$

a) 13310

44) If 15% of A is equal to 20% of B, then A:B is:

- a) 3:4
- b) 4:3**
- c) 3:5
- d) 5:3



Handwritten solution for question 44:

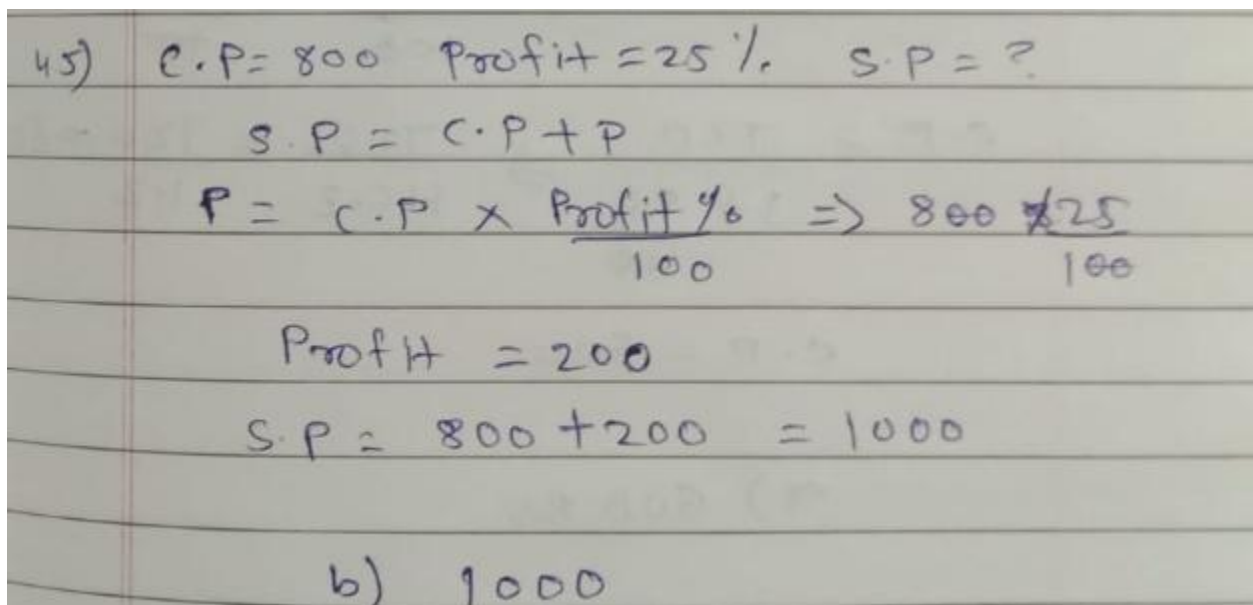
44) 15% of A = 20% of B, A:B = ?

$$15\% \text{ of } A = 20\% \text{ of } B$$
$$\frac{A}{B} = \frac{15/100 A}{20/100 B} = \frac{15A}{20B} = \frac{3A}{4B}$$
$$3A = 4B$$
$$\frac{A}{B} = \frac{4}{3} \quad \therefore A:B \Rightarrow 4:3 \text{ ratio}$$

b) 4:3

45) If the cost price of an item is ₹800 and the profit made is 25%, what is the selling price?

- a) ₹900
- b) ₹1000**
- c) ₹1050
- d) ₹1100



Handwritten solution for question 45:

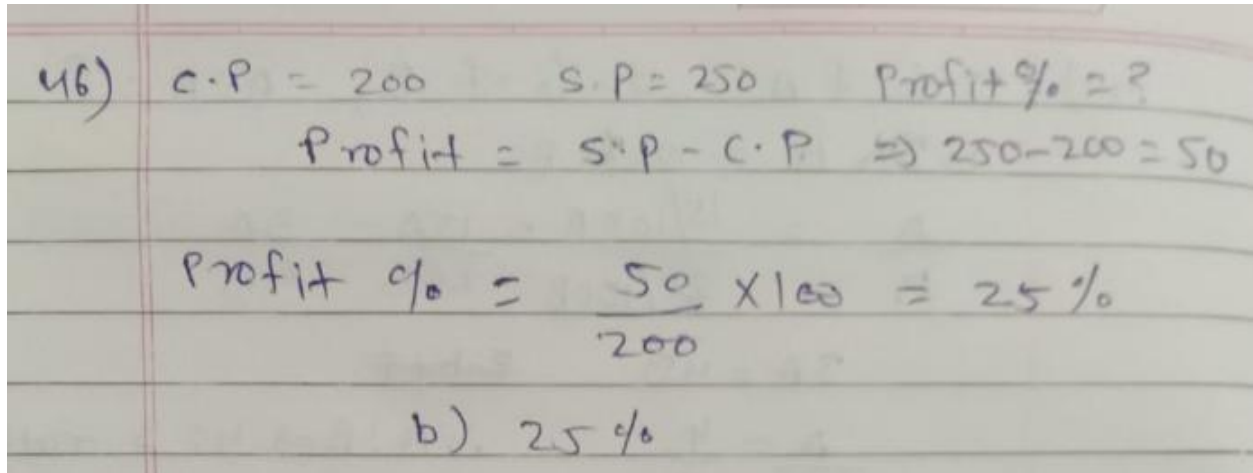
45) C.P = 800 Profit = 25% S.P = ?

$$S.P = C.P + P$$
$$P = C.P \times \frac{\text{Profit}\%}{100} \Rightarrow 800 \times \frac{25}{100}$$
$$\text{Profit} = 200$$
$$S.P = 800 + 200 = 1000$$

b) 1000

46) If the cost price (CP) of an item is ₹200 and the selling price (SP) is ₹250, what is the profit percentage?

- a) 20%
- b) 25%
- c) 30%
- d) 40%

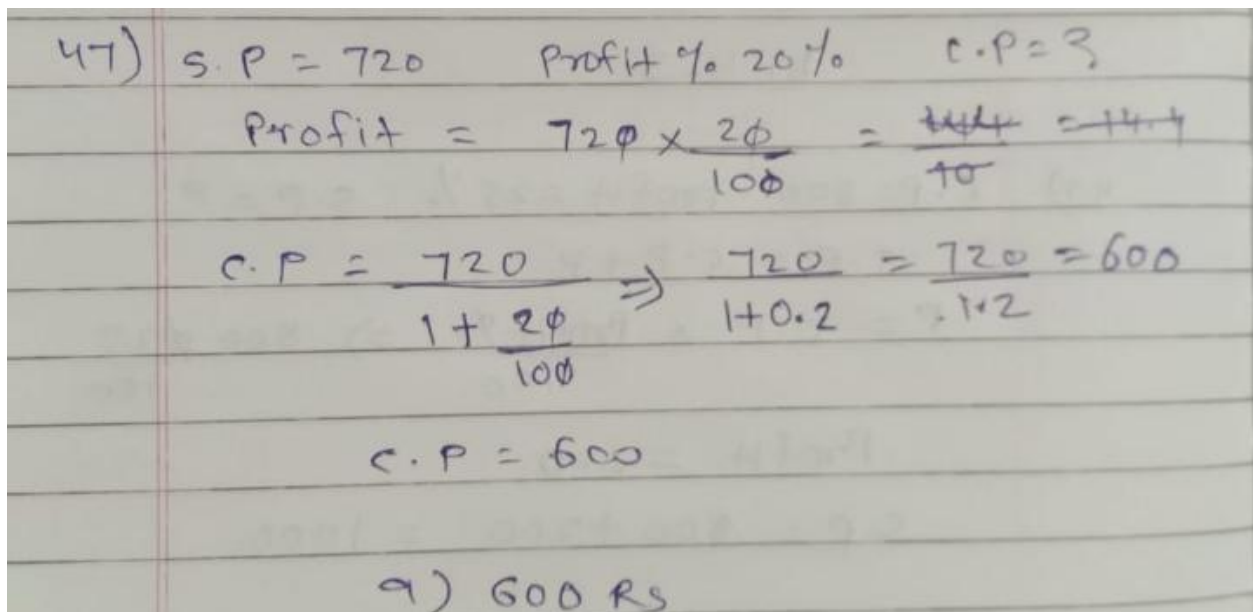


Handwritten solution for question 46:

$$\begin{aligned} 46) \quad C.P. &= 200 \quad S.P. = 250 \quad \text{Profit \%} = ? \\ \text{Profit} &= S.P. - C.P. \Rightarrow 250 - 200 = 50 \\ \text{Profit \%} &= \frac{50}{200} \times 100 = 25\% \\ &\quad b) \quad 25\% \end{aligned}$$

47) A man sells an article for ₹720 at a profit of 20%. Find the cost price.

- a) ₹600
- b) ₹620
- c) ₹650
- d) ₹700

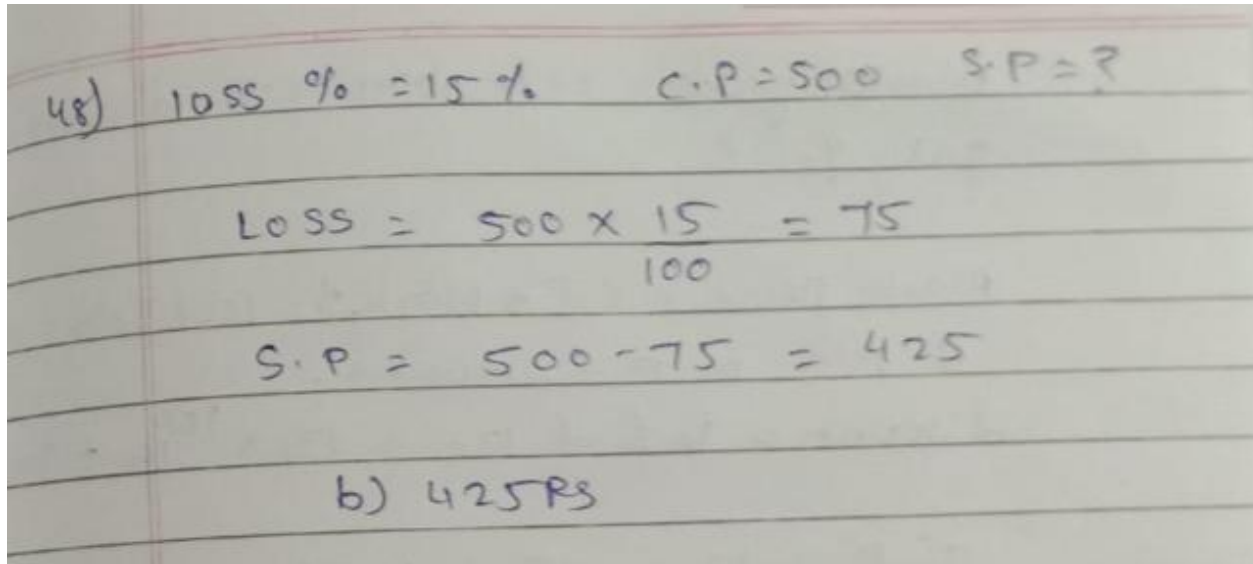


Handwritten solution for question 47:

$$\begin{aligned} 47) \quad S.P. &= 720 \quad \text{Profit \%} = 20\% \quad C.P. = ? \\ \text{Profit} &= 720 \times \frac{20}{100} = \frac{144}{10} = 14.4 \\ C.P. &= \frac{720}{1 + \frac{20}{100}} \Rightarrow \frac{720}{1 + 0.2} = \frac{720}{1.2} = 600 \\ C.P. &= 600 \\ &\quad a) \quad 600 \text{ Rs} \end{aligned}$$

48) A shopkeeper sells an item at a loss of 15%. If the cost price is ₹500, find the selling price.

- a) ₹400
- b) ₹425
- c) ₹450
- d) ₹475



Handwritten solution for question 48:

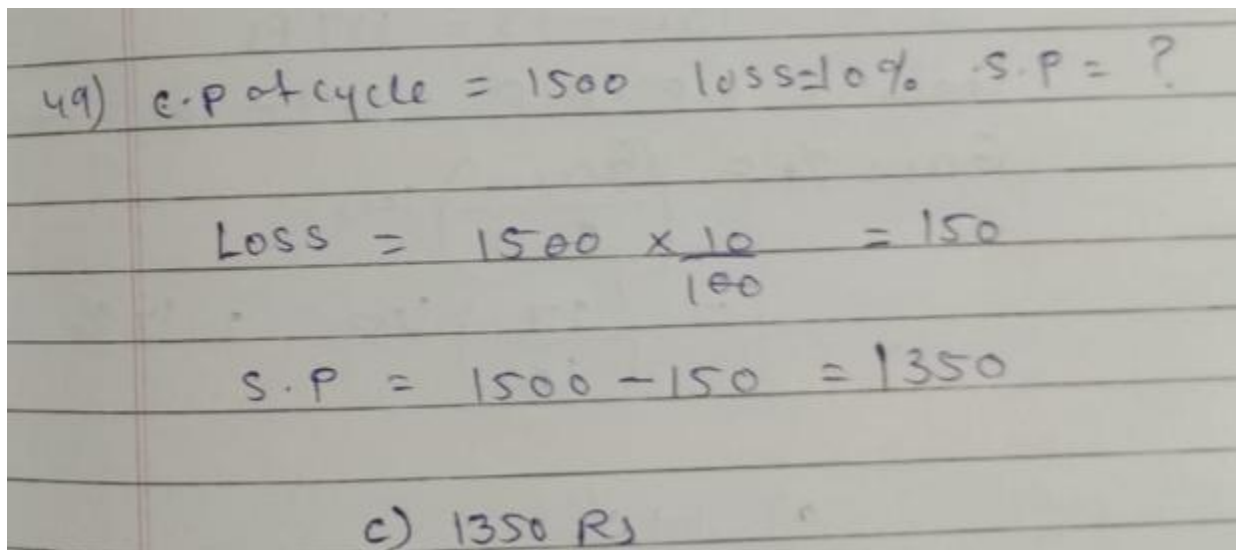
48) Loss % = 15% C.P = 500 S.P = ?

$$\text{Loss} = \frac{500 \times 15}{100} = 75$$
$$\text{S.P} = 500 - 75 = 425$$

b) 425 Rs

49) A man purchased a cycle for ₹1500 and sold it at a loss of 10%. What was the selling price?

- a) ₹1200
- b) ₹1300
- c) ₹1350
- d) ₹1400



Handwritten solution for question 49:

49) C.P of cycle = 1500 Loss = 10% S.P = ?

$$\text{Loss} = \frac{1500 \times 10}{100} = 150$$
$$\text{S.P} = 1500 - 150 = 1350$$

c) 1350 Rs

50) A trader marks his goods at 30% above the cost price and allows a discount of 10%. What is his gain percent?

a) 17%

b) 18%

c) 19%

d) 20%

50) Marks! goods = 30% above C.P. discount 10%
gain % ?

$$\text{Mark Price} = \text{C.P.} + \text{Mark \%} \times 100 + 30\% = 130$$
$$\text{S.P.} = \text{M.P.} - \text{discount.}$$
$$\text{discount} = 10\% \text{ of } 130 = 130 \times \frac{10}{100} = 13$$
$$\text{S.P.} = 130 - 13 = 117 \text{ Rs}$$
$$\text{Gain} = \text{S.P.} - \text{C.P.} = 117 - 100 = 17$$
$$\text{Gain \%} = \left(\frac{\text{Gain}}{\text{C.P.}} \right) 100$$
$$= \left(\frac{17}{100} \right) 100 = 17\%$$

a) 17%