

1. $SP > CP$, Profit = $SP - CP$
2. $SP < CP$, Loss = $CP - SP$
3. $SP = CP$, No profit, No gain
4. $P/L\% = \frac{P/L}{CP} \times 100$

Note :- Profit or Loss Percent is calculated on CP

$$5. CP = \frac{100\%}{(100 \pm P/L)\%} \times SP$$

$$6. SP = \frac{(100 \pm P/L)\%}{100\%} \times CP$$

_____ X _____

# 30% Profit	# 20% Loss	# 25% Loss on CP
$= \frac{3}{10} - P$	$= \frac{1}{5} - L$	$= \frac{1}{4} - L$
$13 - SP$	$4 - SP$	$5 - CP$

_____ X _____

Ex 1. There is loss of 20% on SP calculate actual loss%.

$$\text{Soln:- } \frac{SP}{5} \quad \frac{1}{1} \quad \frac{CP}{6} \quad \left| \quad 20\% = \frac{1}{5} - L \right.$$

$$\text{Loss \%} = \frac{1}{6} \times 100 = 16\frac{2}{3}\%$$

$$(\text{Loss \%} = \frac{1}{6} \times 100 = 16\frac{2}{3}\%)$$

_____ X _____

Ex 2. There is profit of 20% on CP. calculate loss on SP.

$$\text{Soln:- } \frac{CP}{5} \quad \frac{P}{1} \quad \frac{SP}{6} \quad \left| \quad 20\% = \frac{1}{5} - P \right.$$

Q1. A merchant sold an item at $16\frac{2}{3}\%$ Profit on its Selling Price. His actual profit percent is :

Soln:- $16\frac{2}{3}\% = \frac{1}{6} \text{ of } SP \quad \left| \begin{array}{ccc} SP & P & CP \\ 6 & 1 & 5 \end{array} \right| \quad \frac{1}{5} \times 100 = 20\%$

Q2. A man purchased a bedsheet for Rs. 450 and sold it at a gain of 10% calculated on the Selling Price,

Soln:- $10\% = \frac{1}{10} \text{ of } SP \quad \left| \begin{array}{l} \text{ATQ,} \\ 9 \text{ unit} \text{ ————— Rs. 450} \\ 10 \text{ unit} \text{ ————— Rs. 500} \end{array} \right|$
 $9 = CP$

Note:- (1) Loss % on SP > Loss % on CP
 (2) Profit % on SP < Profit % on CP

Q3. By selling an article of E 51, a man bears a Loss of $11\frac{13}{17}\%$ of its selling price, Find the cost price of the article,

Soln:- $11\frac{13}{17}\% \quad \left| \begin{array}{l} \text{ATQ,} \\ 17 \text{ unit} \text{ ————— E51} \\ 19 \text{ unit} \text{ ————— E57} \end{array} \right|$
 $= \frac{2}{17} \text{ — Loss}$
 17 — SP
 19 — CP

Q4. The difference between the selling price and cost price of an article is Rs. 210, If the profit is 25% then the selling of the article is :

Soln:- $SP - CP : 2.5\% \quad \frac{210}{\downarrow \times 5}$
 $SP : 12.5 \quad \frac{1050}{\downarrow \times 5}$
 _____ x _____

Q.5. The selling price of a mobile phone is Rs. 59,620 and it was sold at 8.4% profit, The cost price of the mobile phone is:

Soln:- $\frac{CP}{100} \quad \frac{P}{8.4\%} \quad \frac{SP}{108.4\%} \quad \left| \begin{array}{l} \text{ATQ,} \\ 108.4\% \quad \frac{59,620}{100\% \quad \frac{59,620}{108.4} \times 100} \\ 100\% \quad \frac{59,620}{108.4} \times 100 \end{array} \right.$
 $= 55,000$

Note:- Use digital sum concept to save your valuable time.
 _____ x _____

Q.6. By selling an article of Rs. 1050, there is loss of 6.5%, Find the cost price of the article

Soln:- $6.25\% = \frac{1}{16} \quad \frac{CP}{16} \quad \frac{L}{1} \quad \frac{SP}{15}$
 $15 \text{ unit} \quad \frac{x70}{\quad} \quad \text{Rs. } 1050$
 $16 \text{ unit} \quad \frac{x70}{\quad} \quad \text{Rs. } 1120$
 _____ x _____

Q.7. Rajni Purchased an LED TV Set of Rs. 22,500 and spent Rs. 800 on its transportation and Rs. 1000 on installation, At what price should she sell it so as to earn an overall profit of 20%?

Soln:- $CP = 22,500 + 800 + 1,000 = \text{Rs. } 24,300$
 $SP = CP + P\% \text{ of } CP$
 $= 24,300 + \frac{1}{5} \text{ of } 24,300$

Q.8. If an article is sold for Rs. 355, there is a loss of 29%. At what price (in Rs.) should it be sold to gain 31% profit?

Soln:-

$\frac{SP_1}{71\%}$	$\frac{CP}{100\%}$	$\frac{SP_2}{131\%}$
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ATQ,

71%	$\frac{\times 5}{\quad}$	355
131%	$\frac{\times 5}{\quad}$	655
————— X —————		

Q.9. If an article is sold for Rs. 2,880 the seller will face 10% loss. At what price (in Rs.) should he sell to gain 20% profit?

Soln:- $SP_1 : SP_2 = 90 : 120 = 3 : 4$

ATQ,

3 unit	$\frac{\times 960}{\quad}$	2880
4 unit	$\frac{\times 960}{\quad}$	3840
————— X —————		

Q.10. If an article is sold for Rs. 480, there is a profit of $14\frac{2}{7}\%$. At what price (in Rs.) should it be sold to loss of $16\frac{2}{3}\%$?

Soln:-

$14\frac{2}{7}\% = \frac{1}{7}$
 $16\frac{2}{3}\% = \frac{1}{6}$

$\swarrow \quad \searrow$
 42
 LCM

$\frac{SP_1}{48}$	$\frac{CP}{42}$	$\frac{SP_2}{35}$
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ATQ, 48 units ————— Rs. 480

35 units ————— Rs. 350

Q.11. A Shopkeeper sold an article for Rs. 1140 and bears a loss of 5%. Now if he decides to sell it at Rs. 1260, what will be the result?

Soln:- Rs. 1140 ——— 95% (100% - 5%)

x21 (60 ——— 5%) x21 $\Rightarrow$ 100% + 5%

1260 ——— 105%

cp Profit

_____ x _____

Q.12. An article is sold for Rs. 1040 at a profit of $8\frac{1}{3}\%$,
If the article is sold for Rs. 900, then what will be
gain or loss percent?

Soln:- $100\% + 8\frac{1}{3}\% = 1 + \frac{1}{12} = \frac{13}{12}$

$$\text{Rs. } 1040 \quad \underline{\hspace{2cm}} \quad \frac{13}{12}$$
$$\text{Rs. } 900 \times \frac{13}{2} \times \frac{900}{1040} = \frac{15}{16} = 1 - \frac{1}{16} = 6.25\%$$

Q.13. A man sold his watch at a loss of 5%. Had he sold it for Rs. 56.25 more; he would have gained 10%. What is the cost price of the watch?

Soln: -

95% 100% 110%

SP₁ CP SP₂

15%

↓ x 20/3

100% ————— Rs. 375

Puhan Math Classes : ^{100% —————} 9437655048 ^{Rs. 325}

Q14. If an article is sold at 12.5% gain instead of $16\frac{2}{3}\%$ loss, the man gains Rs. 1533 more, find the cost price of that article?

Soln:- 12.5% and $16\frac{2}{3}\%$

$\frac{1}{8}$ $\frac{1}{6}$
 $\swarrow$ $\searrow$
 LCM : 24

$+ \frac{1}{8}$ CP $- \frac{1}{6}$
 $\swarrow$ $\uparrow$ $\searrow$
 27 24 20

$\longleftarrow$ $\longrightarrow$

7 units ————— 1533
 24 units ————— $\frac{1533}{7} \times 24$
= Rs. 5256

Q.15. A person sold a chair at a profit of 13%, Had he sold it for Rs. 607.50 more, he would have gained $n\%$, if the cost price of the chair is Rs. 3750, then the value of n is :

Soln:-

$\xrightarrow{+13\%}$ $\xrightarrow{(n-13)\%}$
 CP SP₁ SP₂
 | | |
 100% 113% $(100+n)\%$

ATQ Rs. 3750 ————— 100%

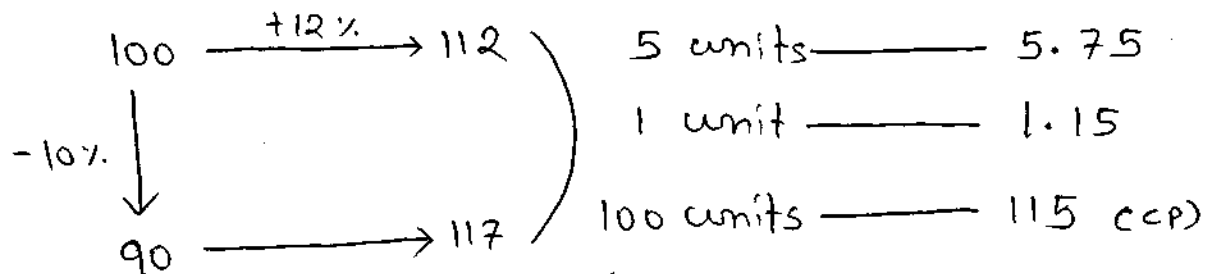
Rs. 607.50 ————— $\frac{100\%}{3750} \times 607.50 = 16.2\%$

$n - 13\% = 16.2\% \Rightarrow n = 29.2\%$

Q.16. An article was sold at a profit of 12%, if the cost price would be 10% loss and selling Price would be Rs. 5.75 more, there would be

Profit of 8% Then what would be the cost price? Should

Soln:-



To gain 20% $\longrightarrow 115 + 20\% = 115 + 23 = 138$

_____ x _____

Q17. A man sells an unit at $7\frac{1}{7}\%$ above its cost price, if he had bought it at $8\frac{3}{3}\%$ less than what he had paid for it, and sold it at Rs. 38 more he would have gained $33\frac{1}{3}\%$. The cost price of the article is :

Soln:- $7\frac{1}{7}\%$ and $8\frac{3}{3}\%$ $33\frac{1}{3}\%$

$\frac{1}{14}$ $\frac{1}{12}$ $\frac{1}{3}$ $\swarrow$ $\swarrow$ $\swarrow$ 84×3 $= 252 \text{ as CP}$	$252 \xrightarrow[+18]{+\frac{1}{14}} 270$ $\downarrow -21 \quad -\frac{1}{12}$ $231 \longrightarrow 308$	$\left. \begin{array}{l} 38 \text{ units} \end{array} \right\}$
	ATQ, 38 unit ————— Rs. 38 252 unit ————— Rs. 252	

_____ x _____

Q.18. An article was sold at 20% profit, had it purchased at Rs. 20 less and sold at Rs. 20 less there would have been profit of 10% more, find the cost Price of the article,

Soln:-

$20\% = \frac{1}{5}$ $\frac{CP}{5n} = \frac{SP}{6n}$ $30\% = \frac{30}{100}$	ATQ, $\frac{5n - 20}{6n - 20} = \frac{10}{13}$ $\Rightarrow 65n - 260 = 60n - 200$ $\Rightarrow 5n = 60$
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Puham Math Classes: 9437655048

New $\frac{10}{10}$ $\frac{13}{13}$

Alternative

$\frac{CP}{5 \times 3}$	$\frac{SP}{6 \times 3}$	5 unit — 20
10	13	15 unit — 60

Q19. A Shopkeeper Sold an article of 10% profit, Had he bought article at Rs. 50 less than Cost price and sold it at Rs. 20 more than selling Price then he would have earned 20% Profit. Find the Selling Price of the article.

Soln:- $10\% = \frac{1}{10}$

$\frac{CP}{10n}$	$\frac{SP}{11n}$	$\frac{10n - 50}{11n + 20} = \frac{5}{6}$	#
		$\Rightarrow 60n - 300 = 55n + 100$	
New $\frac{CP}{5}$	$\frac{SP}{6}$	$\Rightarrow 5n = 400$	
		$\Rightarrow n = 80$	
		$CP = 10n = 10 \times 80 = 800$	

Diagram illustrating the relationship between CP and SP for 5 units:

10	11	} 5 units
5	6	
50	20	} Rs. 400
5 units		Rs. 400
10 units		Rs. 800

Q20. An article is sold at a certain price, If it is Sold at $\frac{4}{5}$ of this price, then there will be a loss of 10%, what is the percentage of profit when the article is sold at the original price?

Soln:- Let SP = 100
New SP = 80

ATQ, $\frac{1}{4} \left(\begin{array}{l} 80 \text{ — } 90\% \\ 100 \text{ — } 112.5\% \end{array} \right) + \frac{1}{4}$

$100\% + 12.5\% \rightarrow \text{Profit}$

Q.21. An article is sold at a certain price, it is at $33\frac{1}{3}\%$ of this price, there is a loss of $33\frac{1}{3}\%$. What is the present profit when it is sold at 60% of the original price?

Soln:-

$ \begin{array}{ccc} 33\frac{1}{3}\% & & 60\% \\ \frac{1}{3} & & \frac{3}{5} \\ \swarrow & & \searrow \\ SP = 15 \end{array} $ $ SP_1 = \frac{1}{3} \times 15 = 5 \quad SP_2 = \frac{3}{5} \times 15 = 9 $	ATQ, 5 units — $\frac{2}{3}$ ($66\frac{2}{3}\%$) 9 units — $\frac{2}{3} \times \frac{9}{5} = \frac{6}{5}$ = 120% Profit = 120% - 100% = 20%
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Q.22. By selling an article at $\frac{7}{12}$ of its selling price a man losses 16%, if he sells it at 90% of its original price, then what will be the profit percentage?

Soln:-

ATQ,

$$\frac{7}{12} \text{ ————— } 84\% \text{ (100\% - 16\%)}$$

$$\frac{9}{10} \text{ ————— } 84\% \times \left(\frac{12}{7} \times \frac{9}{10}\right) = 129.6\%$$

$$\text{Profit \%} = 129.6\% - 100\% = 29.6\%$$

Q.23. The profit earned by selling an article for Rs. 832 is equal to the loss incurred when the article is sold for Rs. 448, What will be the selling price of the article. If it is sold at 10% loss?

Soln:-



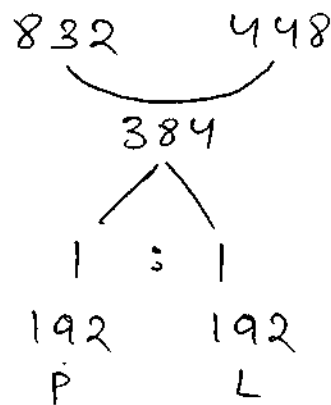
let $CP = n$

$\Rightarrow 832 = n + 448 + n$

$\Rightarrow n = \frac{448 + 832}{2}$

$\Rightarrow n = 640$

Alternative



$-\frac{1}{10} \left(\begin{array}{l} 100\% \text{ ————— } 640 \\ 90\% \text{ ————— } 576 \end{array} \right) - \frac{1}{10}$

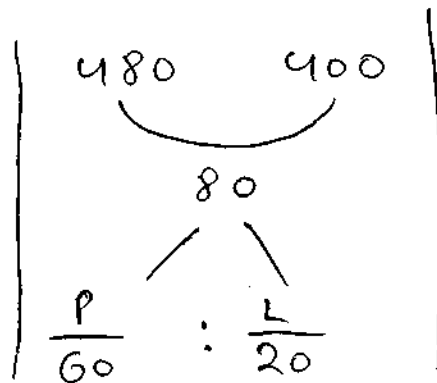
$CP = 832 - 192 = 640$

Q.24. Anu Sold an article for Rs. 480 at same profit. Had she sold it for Rs. 400, then there would have been loss equal to one-third of the initial profit, what was the cost price of the article?

Soln:-

$L = \frac{1}{3} P$

$P:L = 3:1$



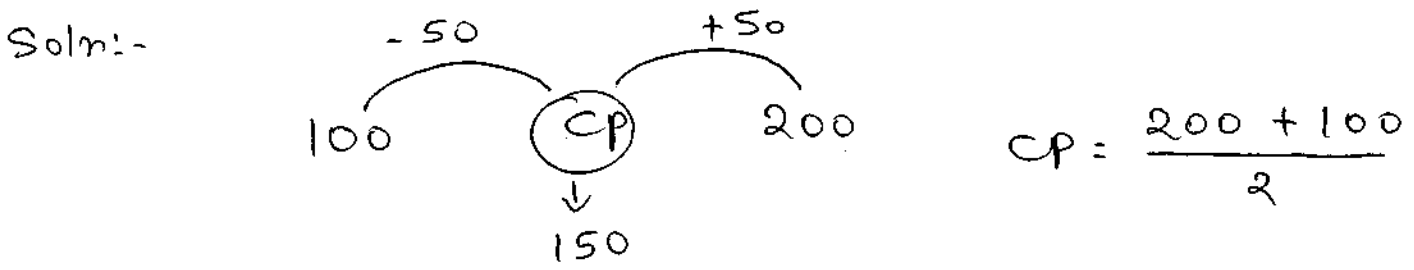
$CP = 480 - 60 = 420$

Q.25. Loss incurred by selling an article for Rs. 800 is 23% more than profit gained by selling a same article for Rs. 1246, Find the cost price of this article?

Soln:-

$\frac{P}{100} \quad \frac{L}{123}$ $\text{Diff} = 1246 - 800$ $= 446$	$\begin{array}{c} 446 \\ \swarrow \quad \searrow \\ 200 \quad 246 \\ P \quad \quad L \end{array}$	$CP = 800 + 200 = 1000$ or $CP = 1246 - 246$ $= 1000$
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Q.26. If the Selling price of an article is doubled, then its loss percent is converted into equal profit percent, then loss percent on the article is :



$$\frac{P}{L} \% = \frac{50}{150} \times 100 = 33 \frac{1}{3} \%$$

Q.27. By selling an article for Rs. 1170, Elisha Suffers as much loss as she would have gained by selling it at a profit of 22%, If she Sells it for Rs. 1450, then her profit / loss percent (correct upto one decimal place) is :

Soln:-

$$\begin{array}{c} -22\% \qquad +22\% \\ \swarrow \quad \searrow \\ 1170 \quad \text{CP} \quad 1450 \\ \downarrow \\ 100\% \end{array}$$

$$\begin{array}{l} 1170 \text{ ————— } 78\% \\ 1450 \text{ ————— } 78\% \times \frac{1450}{1170} \\ \qquad \qquad \qquad = 96.66\% \\ 96.66\% - 100\% \\ \qquad \qquad \qquad = 3.3\% \text{ Loss} \end{array}$$

Q.28. If the selling price is tripled and cost price double, the profit would become 65%. What is the percent profit (in%)?

Soln:-

$\frac{CP}{100}$	$\frac{P}{65}$	$\frac{SP}{165}$	$\left. \begin{array}{l} \\ \\ \\ \end{array} \right\} P\% = \frac{5}{50} \times 100$ $= 10\%$
$\downarrow \times \frac{1}{2}$		$\downarrow \times \frac{1}{3}$	
50		55	
x			

Q.29. If selling price is doubled, then profit triples find the profit percent.

Soln:- $SP - CP = P$

ATQ,

$$2SP - CP = 3(SP - CP)$$

$$\Rightarrow SP = 2CP = CP + \textcircled{CP} \rightarrow 100\%$$

x

Q.30. The cost price of an article is Rs. 360, If it is increased by 25% and then again by $33\frac{1}{3}\%$ and the sold at a price Rs. 810, What is the profit percentage on increased price?

Soln:-

$$\begin{array}{ccccccc}
 & & +\frac{1}{4} & & +\frac{1}{3} & & \\
 & \frown & & \frown & & & \\
 360 & & 450 & & 600 & & 810 \\
 & & & & \frown & &
 \end{array}$$

$$\frac{210}{600} \times 100 = 35\%$$

x

Q.31. Renu bought an article for Rs. 1240 and sold it at a loss of 25%, with this amount, she

bought another article and sold it at a gain of 40%,
Here overall percentage of profit is:

Soln:- $25\% \downarrow \rightarrow -\frac{1}{4}$

$40\% \uparrow = \frac{2}{5}$

$$\begin{array}{cc} 4 & 3 \\ \frac{5}{20} & \frac{7}{21} \end{array}$$

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

$\frac{1}{4}$ $\frac{2}{5}$

20

$-\frac{1}{4}$ $+\frac{2}{5}$

20 15 2.1

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

Q32. A manufacturer sells an article to a wholesaler at a profit of 10%, The wholesaler sells it to a shopkeeper at 20% profit, The shopkeeper sells it to a customer for Rs. 56,100 at loss of 15%, Then the cost price of the manufacturer is:

Soln:-

$10\% \uparrow = \frac{+1}{10}$	$\frac{5}{10}$	ATQ,
$20\% \uparrow = \frac{+1}{5}$	5 3	561 units — 56100
$15\% \downarrow = \frac{-3}{20}$	$\frac{20}{500}$ $\frac{17}{561}$	500 units — 50,000

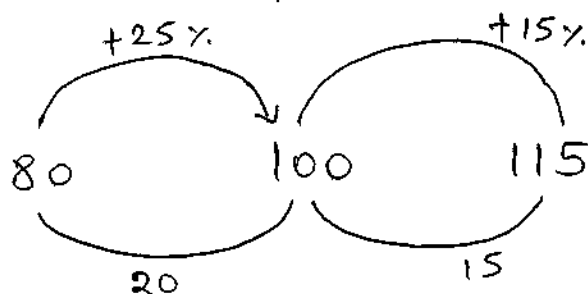
Q33. If a manufacturer gains 22.5%, wholesaler $33\frac{1}{3}\%$ profit and retailer $14\frac{2}{7}\%$ loss, then the retailer cost of an article, whose production cost is Rs. 875 is 1225 is:

Soln:-

$22.5\% \uparrow = \frac{+9}{40}$	$\frac{10}{40}$	$\frac{7}{40}$	$5 \text{ units} \text{ --- } 875$
$33\frac{1}{3}\% \uparrow = \frac{+1}{3}$	$\frac{2}{3}$	$\frac{4}{3}$	$7 \text{ units} \text{ --- } 875$
$14\frac{2}{7}\% \downarrow = -\frac{1}{7}$	$\frac{2}{5}$	$\frac{2}{2}$	$+ \frac{2}{5} \times 875$
			$= 1225$

Q.34. A sold an article at B at a profit of 25%, B sold it to C, at a profit of 15%. The profit made by B is Rs. 40 less the profit made by A. What is the cost price (in Rs.) of the article for A?

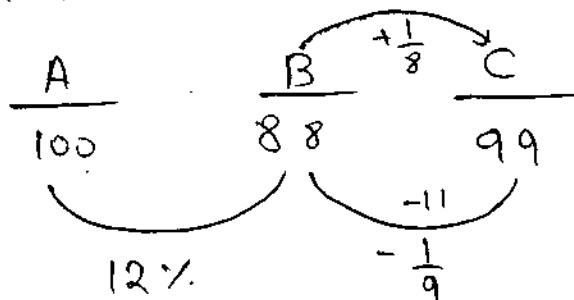
Soln:-



5 units		40
80 units		640

Q.35. A sells a watch to B and makes a loss of $n\%$, B makes a profit of 12.5% by selling the watch to C, If A sells the watch to B at the cost of which C purchased it, then the percentage of loss of A will be 1% , find the value of n .

Soln:-



ARTICLE CONCEPT

Selling price of n article = Cost price of ' y ' article

$$\Rightarrow \frac{SP}{CP} = \frac{y}{n}$$

$$\therefore P\% = \frac{y-n}{n} \times 100$$

Selling qty > buying qty $\rightarrow$ Loss

Selling qty < buying qty $\rightarrow$ Profit

Note:- $\frac{P}{1}\%$ is calculated on selling quantity

Statement (1): SP of 25 pens = CP of 30 pens

Statement (2): By selling 25 pens, a shopkeeper gains CP of 5 pens.

Statement (3): By selling 30 pens, a shopkeeper gains SP of 5 pens.

Statement (1), (2), and (3) are same

Statement (1) $\Rightarrow$ Statement (2)

SP of 25 pens = CP of 30 pens

$\Rightarrow$ SP of 25 pens - CP of 25 pens = CP of 5 pens

$\therefore$ By selling 25 pens, a shopkeeper gains CP of 5 pens.

Q36. If selling price of 75 articles is equal to cost price of 60 articles, then the loss or profit percent is:

Soln:- SP of 75 = CP of 60

$$\frac{15}{75} \times 100 = 20\% \text{ Loss}$$

Q.37. By selling 25 meter cloth a trader gains, the selling price of 5 meters of cloth, The gain percent of the trader is :

Soln:- $SP \text{ of } 25 \text{ m} - CP \text{ of } 25 \text{ m} = SP \text{ of } 5 \text{ m}$
 $\Rightarrow SP \text{ of } 20 \text{ m} - CP \text{ of } 25 \text{ m}$
$$\frac{5}{20} \times 100 = 25\%$$

Q.38. A person buys 80 kg of rice and sells it at a profit of as much money as he paid for 30 kg. His profit percent is :

Soln:- $SP \text{ of } 80 \text{ kg} - CP \text{ of } 80 \text{ kg} = CP \text{ of } 30 \text{ kg}$
 $\Rightarrow SP \text{ of } 80 \text{ kg} = CP \text{ of } 110 \text{ kg}$
$$\frac{30}{80} \times 100 = 37.5\%$$

Q.39. On selling 17 balls at Rs. 720, there is a loss equal to the cost price of 5 balls, The cost price of a ball is :

Soln:- $SP \text{ of } 17 \text{ balls} - CP \text{ of } 17 \text{ balls} = -CP \text{ of } 5 \text{ balls}$
 $\Rightarrow SP \text{ of } 17 \text{ balls} = CP \text{ of } 12 \text{ balls} = Rs. 720$
 $\Rightarrow CP \text{ of } 1 \text{ ball} = Rs. 60$

Q.40. The cost price of 25 item is the same as the revenue by selling of n items, find n , If the Profit made in a transaction is 25%.

Soln:- $25\% = \frac{1}{4} \rightarrow$ Buying quantity
 $\searrow$
 Selling Quantity

$$\Rightarrow \text{SP of 4 item} = \text{CP of 5 item}$$

$$\begin{array}{ccc} \downarrow \times 5 & & \downarrow \\ 20 & & 25 \end{array}$$

Alternative

Price	Quantity
$\frac{1}{4} \uparrow$	$\frac{1}{5} \downarrow$
$-\frac{1}{5}$	
25	20

Q.41. A man bought 15 mangoes for a rupee, How many mangoes were sold for a Rupee so that there is a loss of 25%?

Soln:- $-\frac{1}{4} \rightarrow 3 \rightarrow$ Buying qty
 $\searrow$
 Selling qty

$$3 \rightarrow 15$$

$$4 \rightarrow 20$$

Loss	Quantity
$\frac{1}{4} \downarrow$	$\frac{1}{3} \uparrow$
$+\frac{1}{3}$	
15	20

Q.42. A person bought pens at 25 for a Rupee and sold at 15 for a rupee. What is the profit percent?

Soln:- CP of 25 pens = SP of 15 pens = Rs.1

$$\frac{10}{15} \times 100 = 66 \frac{2}{3}\%$$

Qty	Price
$\frac{2}{5} \downarrow$	$\frac{2}{3} \uparrow$
$= 66 \frac{2}{3}\%$	

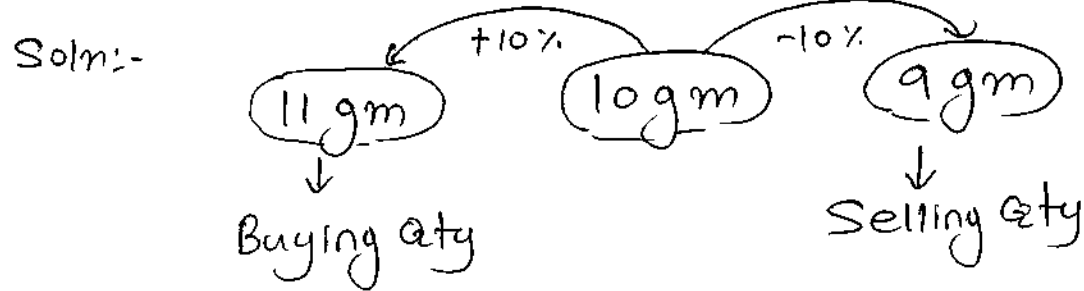
Q.43. A shopkeeper professes to sell his goods at Cost Price, At the time of selling he weights less and there by he gains 11.11%, Find how much quantity he weights less for a kg?

Soln:- $11.11\% = \frac{1}{9} \rightarrow$ Profit on buying qty.

100 units	—————	1000 gm	#	<u>Price</u>	<u>Quantity</u>
9 units	—————	900 gm		$\frac{1}{9} \uparrow$	$\frac{1}{10} \downarrow$
1 unit	—————	100 gm.		$1000 \times \frac{1}{10} = 100 \text{ gm}$	

————— X —————

Q.44. A grocery dealer cheats to the extent of 10% while buying as well as selling by using false weight. What is his profit percent?



$$P\% = \frac{2}{9} \times 100 = 22.22\%$$

————— X —————

Q45. A vendor buys Lemons 15 for Rs.8 and then sells at 10 for Rs.6, what will be the result?

Soln:- Quantity —————> Constant

<u>Quantity</u>	<u>Price</u>	$P\% = \frac{2}{16} \times 100$ $= 12.5\%$
CP: 15 x 2	8 x 2	
SP: 10 x 3	6 x 3	

#	<u>Price</u>	—————> Constant	GP of 45 Lemons = SP of 40 Lemon $= 12.5\%$
	<u>Quantity</u>	<u>Price</u>	
	CP: 15 x 3	8 x 3	
	SP: 10 x 4	6 x 4	

Q.46. A trader bought some oranges at 7 for Rs. 5, He sold all at 4 for Rs. 3 and thereby earns Rs. 15. Find the number of oranges sold?

Soln:-

Quantity	Price	
CP : 7	5	= 20
SP : 4	3	= 21

1 unit — 15
4 units — 60

Q.47. A dishonest grocer sells rice at a profit of 10% and also uses weights which are 20% less than the marked weight. The total gain earned by him will be:

Soln:-

Quantity	Price	
CP : 5	10	= 40
SP : 4	11	= 55

$\frac{15}{40} \times 100 = 37.5\%$

20% ↓ = $-\frac{1}{5}$
10% ↑ = $\frac{1}{10}$

Q.48. A shopkeeper defrauds customers of 20% at the time of buying and 40% at the time of selling the goods. He claims to sell goods at 10% loss. Find the profit percentage earned by the shopkeeper.

Soln:-

Buying quantity : Selling quantity
= 12 : 6 = 2 : 1

CP : 2
SP : 1

Price : $\frac{10}{10}$: $\frac{9}{18}$

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

Q.49. Oranges are bought at 7 for Rs. 4. How many oranges should be sold for Rs. 78 to make a profit of 30%.

Soln:-

Quantity	Price	#	100	130
CP: 7	4		$\frac{100}{4}$	$\frac{130}{7}$
SP: 7	$4 \times \frac{130}{100}$			
				= 35 : 26
35	26			
$\downarrow \times 3$	$\downarrow \times 3$			
105	Rs. 78			

Q.50. A vendor sells Lemons at the rate of 5 for Rs.14 gaining there by 40%, for how much did he buy a dozen lemons?

Soln:-

Quantity	Price
SP: 5	14
CP: 5	$14 \times \frac{100}{140}$

$$5 \xrightarrow{\times 2} 10$$

$$12 \xrightarrow{\times 2} \text{Rs. 24}$$

$$\begin{array}{l} Q_B \quad P_B = Q_S \quad P_B \\ Q_S \quad P_S = Q_B \quad P_S \end{array} \left. \begin{array}{l} \\ \end{array} \right\} \text{Profit or loss}$$

Q.51. A dishonest dealer sells the goods at 15% loss on cost price but uses false weight, so his overall profit is 25%. find how quantity he weight instead of a kg.

Soln:-

Price	Quantity	Price
85 : 125	125	100 = 100
17 : 25	85	
	100	
	100	
Quantity 25 : 17		
$\downarrow \times 40$		
$\downarrow \times 40$		
100 gm		
680 gm		

$$\text{Qty} = \frac{125}{85} : \frac{100}{100}$$

Q.52. A shopkeeper promises to sell his goods at $n\%$ loss but uses 25% less weight thus gain 20%. Find the Value of n ?

Soln:-

Quantity	100 : 75	Price	3 : 4
	4 : 3		
		$\times 30 \downarrow$	$\downarrow \times 30$
		90%	120%
		$\swarrow \searrow$	
		100% - 10%	

_____ X _____

Q.53. A person bought certain number of oranges and sold all at 20% Profit, But there were one bad egg for every dozen orange, And his actual Profit or loss percent?

Soln:- 12 - 1 = 11 he bought

<u>Quantity</u>	<u>Price</u>	
CP : 11	10 = 120	) $\frac{12}{120} \times 100 = 10\%$
SP : 12	12 = 132	

_____ X _____

Q.54. A shopkeeper buys a product of Rs. 150 per kg 15% of the product was damaged, At what price (Per kg) should he sell the remaining so as to earn a profit of 20%?

Soln:-

$\frac{100}{100}$	:	$\frac{120}{85}$
17	:	24

17 units — 150

24 units — $\frac{150 \times 24}{17}$

Hints

<u>Qty</u>	<u>Price</u>
85	1
100	$\frac{120}{85}$

100) + 20%

120
Price > 1.120 = 85.120

Q.55. A merchant bought 200 eggs, out of which 38 eggs were broken. He sold remaining eggs at the rate of Rs. 48 per dozen thus gained 8%. His total investment is:

Soln:-

$$\begin{array}{l|l} \text{Price} \longrightarrow \frac{100}{200} : \frac{108}{162} & \begin{array}{l} 4 \text{ units} \xrightarrow{\times 12} 48 \text{ per dozen} \\ 3 \text{ units} \xrightarrow{\quad\quad\quad} 36 \text{ per dozen} \\ \Rightarrow 12 \text{ egg} \xrightarrow{\times 3} \text{Rs } 36 \\ \therefore 200 \text{ egg} \xrightarrow{\times 3} \text{Rs. } 600 \end{array} \\ 3 : 4 & \end{array}$$

Q.56. A rice trader buys 26 quintals of rice for Rs. 1872. 28% rice is lost in transportation, At what rate should he sell to earn 10% profit?

Soln:-

$$\begin{array}{l|l} \text{Price} \longrightarrow \frac{100}{100} : \frac{110}{72} & \begin{array}{l} 26 \text{ quintal} \xrightarrow{\quad\quad\quad} 1872 \\ 1 \text{ quintal} \xrightarrow{\quad\quad\quad} \text{Rs. } 72 \end{array} \\ 72 : 110 & \\ \downarrow \quad \downarrow & \\ 72 \quad \text{Rs. } 110 & \end{array}$$

Q.57. A person bought some articles at the rate of 5 per rupees and the same number at the rate of 6 per rupees. He mixed both the types and sold at the rate of 4 for 1 rupee and thereby he gains Rs. 48. Find the profit percent and number of oranges sold:

$$\begin{array}{l|l} \text{Soln:-} & \begin{array}{l} 30 \begin{cases} 5 \times 6 \xrightarrow{\quad\quad\quad} 1 \times 6 \\ 6 \times 5 \xrightarrow{\quad\quad\quad} 1 \times 5 \end{cases} \\ \text{CP: } 60 \xrightarrow{\quad\quad\quad} 11 \times 4 \\ \text{SP: } 4 \times 15 \xrightarrow{\quad\quad\quad} 1 \times 15 \end{array} \\ & \begin{array}{l} 4 \text{ units} \xrightarrow{\times 12} \text{Rs. } 48 \\ 60 \text{ units} \xrightarrow{\times 12} \text{Rs. } 720 \\ \text{Again} \\ \text{P\%} = \frac{4}{9} \times 100 = 44.44\% \end{array} \end{array}$$

Q.58. Some fruits are bought at 15 for Rs. 140 and an equal number of fruits at 10 for Rs. 120. If all the fruits are sold at Rs. 132 per dozen, then what is the profit percent in the entire transaction?

Soln:-

$$\begin{array}{rcl}
 15 \times 2 & \text{---} & 140 \times 2 \\
 10 \times 3 & \text{---} & 120 \times 3 \\
 \\
 \text{CP} & \longrightarrow & 60 \times 1 \longrightarrow 640 \times 1 \\
 \text{SP} & \longrightarrow & 12 \times 5 \longrightarrow 132 \times 5 \\
 & & = 660
 \end{array}
 \left. \vphantom{\begin{array}{rcl} 15 \times 2 & \text{---} & 140 \times 2 \\ 10 \times 3 & \text{---} & 120 \times 3 \\ \text{CP} & \longrightarrow & 60 \times 1 \longrightarrow 640 \times 1 \\ \text{SP} & \longrightarrow & 12 \times 5 \longrightarrow 132 \times 5 \\ & & = 660 \end{array}} \right\} \frac{20}{640} \times 100 = 3\frac{1}{8}\%$$

Q.59. A person sold 25 Articles for Rs. 2,500 and incurred a loss of 10%. How many articles should he sell for Rs. 2,400 to make a profit of 20%?

Soln:-

$$\begin{array}{rcl}
 \text{SP}_1 : 25 & \text{---} & \text{Rs. } 2500 \\
 \text{CP} : 25 & \text{---} & \text{Rs. } 2500 \times \frac{100}{90} \\
 & & 9 \text{ --- Rs. } 1000 \\
 \text{SP}_2 : 9 & \text{---} & \text{Rs. } 1000 \times \frac{120}{100} \\
 & & 3 \text{ --- Rs. } 400 \\
 & & \downarrow \times 6 \\
 & & 18
 \end{array}$$

$$\begin{array}{l}
 \# \frac{n_1 \times \text{SP}_1 \%}{\text{SP}_1} = \frac{n_2 \times \text{SP}_2 \%}{\text{SP}_2} \\
 \frac{25 \times 90\%}{2500} = \frac{n_2 \times 120\%}{2400} \\
 \Rightarrow n_2 = 18
 \end{array}$$

Q.60. By selling 3 dozen oranges for Rs. 405, a trader loses 25%. How much oranges he sell for Rs. 288 if he needs to earn a profit 20% in the transaction?

Soln:- $\frac{36 \times 75\%}{405} = \frac{n_2 \times 120\%}{288}$

$\Rightarrow n_2 = 16$

Q.61. A Shopkeeper bought 840 kg. of rice, A Part of it was sold at 25% profit and remaining at 10% loss and on the whole, the profit was 15%, What was the quantity of rice which was sold 10% loss?

Soln:-

25%	-10%	
25	10	
5	2	

7 units $\times 120$ 840 kg.

2 units $\times$ 240 kg

Q.62 A Shopkeeper bought 120 quintals of wheat 20% of it was sold at 25% loss, At what percent gain he sell the rest to gain 25% on the whole transaction?

Soln:-

-50% X 1

-25%

+25%

25%

$\frac{50}{4} \% = 37.5\%$

Q.63. A dealer bought some toys for Rs. 1800, He sold 40% of these at a loss 15% and $33\frac{1}{3}$ of the remaining toys at 20% profit, At what percent

Profit should he sell the toys to earn an overall

Profit of 10%?

Soln:- 40% $33\frac{1}{3}\%$

$$\begin{array}{c} \frac{2}{5} \quad \frac{1}{3} \\ \diagdown \quad \diagup \\ 15 \end{array}$$

$$\begin{array}{r} -25 \\ \times 6 \\ \hline -150 \end{array}$$

$$\begin{array}{c} -150\% + 30\% \\ \hline = 120\% \end{array}$$

$$\begin{array}{c} -15\% \quad 20\% \quad 30\% \\ \left(\begin{array}{|c|c|c|} \hline 6 & 3 & 6 \\ \hline \end{array} \right) \\ \begin{array}{ccc} 10\% & 10\% & 10\% \end{array} \end{array}$$

$$\frac{120\%}{6} = 20\%$$

Q.64. A shopkeeper bought 20kg of Sugar at Rs. 45 per kg, 25 kg of Sugar at Rs. 50 per kg and 35 kg of Sugar at Rs. 40 kg. He spent sum of Rs. 450 on transportation and other expenses, He mixed all the three type of Sugar and sold all the stock at Rs. 52.50 per kg. His profit percent in the entire transaction is:

Soln:- Take 45 as average CP

$$\begin{array}{r} (45 - 45) \times 20 = 0 \\ (50 - 45) \times 25 = 125 \\ (40 - 45) \times 35 = -175 \\ \hline -50 \\ +450 \\ \hline 400 \end{array}$$

$$\text{Actual CP} = 45 + \frac{400}{80} = \text{Rs. 50 per kg}$$

$$P\% = \frac{2.5}{50} \times 100 = 5\%$$

Q.65. The cost of pencil is $33\frac{1}{3}$ less than the cost price of a pen, If a man sells 4 pencils at the cost price of 5 pens, then what is the profit percent?

Soln:- $\frac{\text{Pencil}}{2} \quad \frac{\text{Pen}}{3}$

$$\text{CP of 4 pencils} = 4 \times 2 = \text{Rs. 8}$$

$$\frac{7}{8} \times 100 = 87.5\%$$

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Q.66. Sella purchases two varieties of apples - A and B for a total of Rs. 2,800. The weight in kg of A and B purchased by Sella are in the ratio 5:8 but the cost per kg of A is 20% more than that of B. Sella sells A and B with profit of 15% and 10% respectively. What is the overall profit in rupees?

Soln:-

<u>A</u>	<u>B</u>		2800	
weight: 5	8		3 : 4	= 180 + 160 = Rs. 340
x	x		A	B
Price: 6	5		1200	1600
30	40		x 15%	x 10%
3 : 4				

Q.67. A man sold a table at 7% profit and a chair at 11% profit. If he sold the table at 11% profit and the chair at 7% profit, he gains Rs. 80 more. Find the cost price of table and chair if he purchases both at Rs. 20,000 :

Soln:-

7% T + 11% C = x	T + C = 20,000
11% T + 7% C = x + 80	T - C = 2,000
4% (T - C) = 80	T = 11,000
T - C = 2,000	C = 9,000

Q.68. A man sells a table and a chair at 13% and 19% profit respectively and earns Rs. 1060 as profit. But if he sells at 16.66% profit and 11.11% loss then he bears neither profit nor loss, find

Soln:- $16 \frac{2}{3} \% \quad T = 11 \frac{1}{9} \% C$

$$\Rightarrow \frac{T}{6} = \frac{C}{9}$$

$$\Rightarrow \frac{T}{C} = \frac{2}{3}$$

Table	Chair
200	300
$\times 13\%$	$\times 9\%$
$= 26$	$+ 27$
$= 53$	

53 unit — 1060

1 unit — 20

Table = 200×20

$= 4000$

Chair = 300×20

$= 6000$

When two articles are bought Sold :-

Profit or loss of two articles are Same.

1st	2nd
$P_1 \%$	$P_2 \%$
P_2	P_1

: $\rightarrow$ Ratio of cost prices of two articles

Q.69. A trader bought a table and chair for Rs. 2860. He sold table at 15% profit and chair at 24% profit, If he received equal gain on each article, find the difference between price of table and chair.

Soln:-

Table	Chair
15%	24%
CP: 24	15
8	5

ATA,

13 units $\times 200 = 2860$

3 units $\times 220 = \text{Rs. } 660$

Q.70. By selling table at $13 \frac{1}{3} \%$ profit and chair at $14 \frac{2}{7} \%$ profit, he received equal gain on each article, If the difference between price of table and chair is Rs. 3,000, then find the cost price of

Soln:-

<u>Table</u>	<u>Chair</u>
$\frac{2 - P}{15}$	$\frac{1 \times 2 - P}{7 \times 2}$

10 unit - 3000

Rs. 45,000

$$13 \frac{1}{3} \% = \frac{2}{15}$$

$$14 \frac{2}{7} \% = \frac{1}{7}$$

Q71. A shopkeeper buys two articles for Rs. 7500. He sells one article at a profit of 16% and the other articles at 14% loss, In the transaction, he makes neither profit nor loss, What is the difference between the selling prices of both articles.

Soln:-

<u>1st</u>	<u>2nd</u>
16%	14%
CP: 7	8

15 units — 7500

1 unit — $\frac{7500}{15}$

= 500

$$X$$

<u>1st</u>	<u>2nd</u>
CP 3500	4000
+16% $\left(\begin{array}{l} +560 \\ \hline 4060 \end{array} \right)$	-14% $\left(\begin{array}{l} -560 \\ \hline 3440 \end{array} \right)$
SP	620

The Selling prices are same

<u>1st article</u>	<u>2nd article</u>
SP ₁	SP ₂
Ratio of CP SP ₂	SP ₁

$$X$$

Q.72. Radha bought a fridge and a washing machine together for Rs. 57,300. She sold the fridge at a profit of 15% and washing machine at a loss

24% and both are sold at the same price, The cost price of washing machine (in Rs.) is :

Soln:-	<u>Fridge</u>	<u>Washing machine</u>	ATQ,
	115%	76%	191 units $\times 300$ Rs. 57300
	CP: 76	115	115 units $\times 300$ Rs. 34500

_____ X _____

Q.73. The difference between the cost price of microwave oven and mixer is Rs. 9450, The mixer was sold at a profit of 32% and the microwave oven at a profit oven at a loss of 22%. If the sale price of the cheaper item was:

Soln:-	<u>Oven</u>	<u>Mixer</u>	ATQ,
	78%	132%	9 units ——— Rs. 9,450
	132%	78%	1 unit ——— Rs. 1050
CP: 22	:	13	13 units ——— Rs. 13,650

_____ X _____

Q.74. Two articles are sold for Rs. 9,720 each, on one the seller gains 8% and on the other, he losses 10%. What is his overall gain or loss?

Soln:-	<u>1st</u>	<u>2nd</u>	ATQ,
	$\left(\begin{array}{l} 50 + 60 = 110 \\ 8\% \end{array} \right)^2$		54 units — 9,720
	$\left(\begin{array}{l} 54 + 54 = 108 \\ \text{SP} \end{array} \right)$		1 unit — 180
			2 units — 360

_____ X _____

Q.75. Two articles are sold for Rs. 962 each, the seller gains 30% profit on the other he losses 26%. What is his overall gain or loss percentage, nearest

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to one decimal place.

Soln:-

<u>1st</u>	<u>2nd</u>
130%	74%
CP: 74	130 = 240

$\xrightarrow{+30\%} 96.2$ $\xrightarrow{+22.2} 118.4$
 $\xrightarrow{+30\%} 153.92$ $\xrightarrow{+22.2} 145.6$
 $\xrightarrow{+30\%} 190.28$ $\xrightarrow{+22.2} 178.72$
 $\xrightarrow{+30\%} 247.96$ $\xrightarrow{+22.2} 219.52$
 $\xrightarrow{+30\%} 323.38$ $\xrightarrow{+22.2} 287.74$
 $\xrightarrow{+30\%} 421.86$ $\xrightarrow{+22.2} 351.18$
 $\xrightarrow{+30\%} 548.42$ $\xrightarrow{+22.2} 439.54$
 $\xrightarrow{+30\%} 713.11$ $\xrightarrow{+22.2} 571.10$
 $\xrightarrow{+30\%} 927.04$ $\xrightarrow{+22.2} 741.83$
 $\xrightarrow{+30\%} 1205.19$ $\xrightarrow{+22.2} 959.36$
 $\xrightarrow{+30\%} 1567.14$ $\xrightarrow{+22.2} 1237.04$
 $\xrightarrow{+30\%} 2037.28$ $\xrightarrow{+22.2} 1613.99$
 $\xrightarrow{+30\%} 2648.27$ $\xrightarrow{+22.2} 2034.57$
 $\xrightarrow{+30\%} 3442.75$ $\xrightarrow{+22.2} 2605.44$
 $\xrightarrow{+30\%} 4475.58$ $\xrightarrow{+22.2} 3343.07$
 $\xrightarrow{+30\%} 5818.25$ $\xrightarrow{+22.2} 4292.93$
 $\xrightarrow{+30\%} 7563.73$ $\xrightarrow{+22.2} 5585.81$
 $\xrightarrow{+30\%} 9832.85$ $\xrightarrow{+22.2} 7263.15$
 $\xrightarrow{+30\%} 12782.71$ $\xrightarrow{+22.2} 9399.10$
 $\xrightarrow{+30\%} 16617.52$ $\xrightarrow{+22.2} 12127.83$
 $\xrightarrow{+30\%} 21602.78$ $\xrightarrow{+22.2} 15576.72$
 $\xrightarrow{+30\%} 28083.61$ $\xrightarrow{+22.2} 19960.16$
 $\xrightarrow{+30\%} 36508.69$ $\xrightarrow{+22.2} 25656.41$
 $\xrightarrow{+30\%} 47461.30$ $\xrightarrow{+22.2} 33158.33$
 $\xrightarrow{+30\%} 61699.69$ $\xrightarrow{+22.2} 42657.83$
 $\xrightarrow{+30\%} 80209.60$ $\xrightarrow{+22.2} 55259.22$
 $\xrightarrow{+30\%} 104272.48$ $\xrightarrow{+22.2} 71941.90$
 $\xrightarrow{+30\%} 135554.23$ $\xrightarrow{+22.2} 93676.37$
 $\xrightarrow{+30\%} 176220.50$ $\xrightarrow{+22.2} 121794.28$
 $\xrightarrow{+30\%} 229086.65$ $\xrightarrow{+22.2} 158368.56$
 $\xrightarrow{+30\%} 297812.65$ $\xrightarrow{+22.2} 203079.13$
 $\xrightarrow{+30\%} 387156.44$ $\xrightarrow{+22.2} 264063.97$
 $\xrightarrow{+30\%} 503303.38$ $\xrightarrow{+22.2} 341683.16$
 $\xrightarrow{+30\%} 654294.39$ $\xrightarrow{+22.2} 442208.15$
 $\xrightarrow{+30\%} 850582.71$ $\xrightarrow{+22.2} 576870.63$
 $\xrightarrow{+30\%} 1105757.52$ $\xrightarrow{+22.2} 750771.83$
 $\xrightarrow{+30\%} 1437484.78$ $\xrightarrow{+22.2} 969003.90$
 $\xrightarrow{+30\%} 1868730.21$ $\xrightarrow{+22.2} 1259625.07$
 $\xrightarrow{+30\%} 2429349.28$ $\xrightarrow{+22.2} 1637512.59$
 $\xrightarrow{+30\%} 3158154.06$ $\xrightarrow{+22.2} 2119266.41$
 $\xrightarrow{+30\%} 4105600.28$ $\xrightarrow{+22.2} 2756646.33$
 $\xrightarrow{+30\%} 5337280.36$ $\xrightarrow{+22.2} 3598860.23$
 $\xrightarrow{+30\%} 6938464.47$ $\xrightarrow{+22.2} 4678518.30$
 $\xrightarrow{+30\%} 9019993.81$ $\xrightarrow{+22.2} 6097873.80$
 $\xrightarrow{+30\%} 11725992.05$ $\xrightarrow{+22.2} 7971236.04$
 $\xrightarrow{+30\%} 15243789.67$ $\xrightarrow{+22.2} 10443606.85$
 $\xrightarrow{+30\%} 19816926.57$ $\xrightarrow{+22.2} 13617689.01$
 $\xrightarrow{+30\%} 25762004.54$ $\xrightarrow{+22.2} 17704405.71$
 $\xrightarrow{+30\%} 33490605.91$ $\xrightarrow{+22.2} 23071727.42$
 $\xrightarrow{+30\%} 43537787.68$ $\xrightarrow{+22.2} 29894236.15$
 $\xrightarrow{+30\%} 56599124.00$ $\xrightarrow{+22.2} 39161507.00$
 $\xrightarrow{+30\%} 73578861.20$ $\xrightarrow{+22.2} 50913959.00$
 $\xrightarrow{+30\%} 95652519.56$ $\xrightarrow{+22.2} 66598146.70$
 $\xrightarrow{+30\%} 124348275.43$ $\xrightarrow{+22.2} 87997590.71$
 $\xrightarrow{+30\%} 161652758.06$ $\xrightarrow{+22.2} 115146867.92$
 $\xrightarrow{+30\%} 210148585.48$ $\xrightarrow{+22.2} 150791028.40$
 $\xrightarrow{+30\%} 273193161.12$ $\xrightarrow{+22.2} 196039336.92$
 $\xrightarrow{+30\%} 355151110.46$ $\xrightarrow{+22.2} 254991138.00$
 $\xrightarrow{+30\%} 461696443.60$ $\xrightarrow{+22.2} 333689480.40$
 $\xrightarrow{+30\%} 599205376.68$ $\xrightarrow{+22.2} 433816324.52$
 $\xrightarrow{+30\%} 778967090.69$ $\xrightarrow{+22.2} 566061221.88$
 $\xrightarrow{+30\%} 1012657217.80$ $\xrightarrow{+22.2} 741959588.46$
 $\xrightarrow{+30\%} 1316454383.14$ $\xrightarrow{+22.2} 964057665.00$
 $\xrightarrow{+30\%} 1711390708.08$ $\xrightarrow{+22.2} 1255274974.50$
 $\xrightarrow{+30\%} 2224807920.51$ $\xrightarrow{+22.2} 1637957466.85$
 $\xrightarrow{+30\%} 2892250296.66$ $\xrightarrow{+22.2} 2131094707.00$
 $\xrightarrow{+30\%} 3759925385.66$ $\xrightarrow{+22.2} 2781023119.10$
 $\xrightarrow{+30\%} 4887903001.36$ $\xrightarrow{+22.2} 3639330054.83$
 $\xrightarrow{+30\%} 6354273901.77$ $\xrightarrow{+22.2} 4731929071.28$
 $\xrightarrow{+30\%} 8260556072.31$ $\xrightarrow{+22.2} 6122507792.67$
 $\xrightarrow{+30\%} 10718722894.01$ $\xrightarrow{+22.2} 7959260180.53$
 $\xrightarrow{+30\%} 13934340762.21$ $\xrightarrow{+22.2} 10394038236.30$
 $\xrightarrow{+30\%} 18114643090.88$ $\xrightarrow{+22.2} 13471249907.29$
 $\xrightarrow{+30\%} 23349036018.14$ $\xrightarrow{+22.2} 17544924879.48$
 $\xrightarrow{+30\%} 30153746823.59$ $\xrightarrow{+22.2} 22930402744.33$
 $\xrightarrow{+30\%} 39199870870.67$ $\xrightarrow{+22.2} 29881123577.63$
 $\xrightarrow{+30\%} 51059832131.87$ $\xrightarrow{+22.2} 39245460651.02$
 $\xrightarrow{+30\%} 66377781771.43$ $\xrightarrow{+22.2} 51215098847.33$
 $\xrightarrow{+30\%} 86291316302.86$ $\xrightarrow{+22.2} 66784628501.57$
 $\xrightarrow{+30\%} 112178711193.72$ $\xrightarrow{+22.2} 88172027052.04$
 $\xrightarrow{+30\%} 145832324551.84$ $\xrightarrow{+22.2} 115428635167.65$
 $\xrightarrow{+30\%} 189582021917.39$ $\xrightarrow{+22.2} 150177245718.15$
 $\xrightarrow{+30\%} 244456628492.61$ $\xrightarrow{+22.2} 194933919433.59$
 $\xrightarrow{+30\%} 317793617040.39$ $\xrightarrow{+22.2} 254614105263.67$
 $\xrightarrow{+30\%} 413141702152.51$ $\xrightarrow{+22.2} 333018336842.77$
 $\xrightarrow{+30\%} 537084212798.26$ $\xrightarrow{+22.2} 433963837995.60$
 $\xrightarrow{+30\%} 698209476637.74$ $\xrightarrow{+22.2} 567183009754.29$
 $\xrightarrow{+30\%} 907672319629.26$ $\xrightarrow{+22.2} 744999972706.68$
 $\xrightarrow{+30\%} 1179974015518.04$ $\xrightarrow{+22.2} 982739964518.70$
 $\xrightarrow{+30\%} 1535966220173.45$ $\xrightarrow{+22.2} 1287611953874.31$
 $\xrightarrow{+30\%} 1996756086225.49$ $\xrightarrow{+22.2} 1686935540036.60$
 $\xrightarrow{+30\%} 2605782912093.13$ $\xrightarrow{+22.2} 2217006202047.59$
 $\xrightarrow{+30\%} 3387517785721.07$ $\xrightarrow{+22.2} 2917548062661.87$
 $\xrightarrow{+30\%} 4403773121437.39$ $\xrightarrow{+22.2} 3842872481480.43$
 $\xrightarrow{+30\%} 5724925057868.61$ $\xrightarrow{+22.2} 5016773225924.56$
 $\xrightarrow{+30\%} 7442402575229.20$ $\xrightarrow{+22.2} 6582014193701.93$
 $\xrightarrow{+30\%} 9675123347798.96$ $\xrightarrow{+22.2} 8698618451812.51$
 $\xrightarrow{+30\%} 12577660352138.65$ $\xrightarrow{+22.2} 11311404187356.26$
 $\xrightarrow{+30\%} 16350958457780.25$ $\xrightarrow{+22.2} 14795845443563.14$
 $\xrightarrow{+30\%} 21256246095314.32$ $\xrightarrow{+22.2} 19468699076632.08$
 $\xrightarrow{+30\%} 27633119923908.62$ $\xrightarrow{+22.2} 25679708799631.70$
 $\xrightarrow{+30\%} 35923055891081.21$ $\xrightarrow{+22.2} 33688621439521.21$
 $\xrightarrow{+30\%} 46699972658405.57$ $\xrightarrow{+22.2} 44115208371377.58$
 $\xrightarrow{+30\%} 60709964455927.24$ $\xrightarrow{+22.2} 57959870883791.26$
 $\xrightarrow{+30\%} 78922953792705.41$ $\xrightarrow{+22.2} 76299732148928.64$
 $\xrightarrow{+30\%} 102599840930517.04$ $\xrightarrow{+22.2} 100043651793627.24$
 $\xrightarrow{+30\%} 133379793209672.15$ $\xrightarrow{+22.2} 130256747336725.41$
 $\xrightarrow{+30\%} 173393731172573.80$ $\xrightarrow{+22.2} 170939771437743.03$
 $\xrightarrow{+30\%} 225411850524345.94$ $\xrightarrow{+22.2} 222691622969186.94$
 $\xrightarrow{+30\%} 293035405681649.72$ $\xrightarrow{+22.2} 291559110060947.02$
 $\xrightarrow{+30\%} 380946027386144.64$ $\xrightarrow{+22.2} 384886853079231.12$
 $\xrightarrow{+30\%} 497229835601988.03$ $\xrightarrow{+22.2} 500360909003000.46$
 $\xrightarrow{+30\%} 645400786282582.44$ $\xrightarrow{+22.2} 656469171603900.59$
 $\xrightarrow{+30\%} 839020922167357.18$ $\xrightarrow{+22.2} 864351923085070.77$
 $\xrightarrow{+30\%} 1091727198817564.33$ $\xrightarrow{+22.2} 1125027500010591.81$
 $\xrightarrow{+30\%} 1419245357462833.63$ $\xrightarrow{+22.2} 1478635800013769.36$
 $\xrightarrow{+30\%} 1844919064701683.72$ $\xrightarrow{+22.2} 1944446540017900.17$
 $\xrightarrow{+30\%} 2398394784112188.84$ $\xrightarrow{+22.2} 2551780502023270.22$
 $\xrightarrow{+30\%} 3117913219345845.29$ $\xrightarrow{+22.2} 3337366652630251.29$
 $\xrightarrow{+30\%} 4053287185149608.88$ $\xrightarrow{+22.2} 4359926648429326.68$
 $\xrightarrow{+30\%} 5269273340694491.55$ $\xrightarrow{+22.2} 5693014642958124.89$
 $\xrightarrow{+30\%} 6890055342902839.01$ $\xrightarrow{+22.2} 7479979836045562.36$
 $\xrightarrow{+30\%} 8957071945773690.72$ $\xrightarrow{+22.2} 9873021786859231.07$
 $\xrightarrow{+30\%} 11644193529505797.94$ $\xrightarrow{+22.2} 12855928322916999.59$
 $\xrightarrow{+30\%} 15157451588357537.32$ $\xrightarrow{+22.2} 16702707019992099.47$
 $\xrightarrow{+30\%} 19704687064864808.52$ $\xrightarrow{+22.2} 21598969126389729.31$
 $\xrightarrow{+30\%} 25616093184324251.08$ $\xrightarrow{+22.2} 28240860964306648.10$
 $\xrightarrow{+30\%} 33300921139621526.40$ $\xrightarrow{+22.2} 36799121253608642.53$
 $\xrightarrow{+30\%} 43091197481507984.32$ $\xrightarrow{+22.2} 48113857629691235.29$
 $\xrightarrow{+30\%} 56218556725960380.62$ $\xrightarrow{+22.2} 62559214929201605.88$
 $\xrightarrow{+30\%} 72884123743748494.81$ $\xrightarrow{+22.2} 81597399817962087.85$
 $\xrightarrow{+30\%} 94749360866873043.25$ $\xrightarrow{+22.2} 106711729762850713.40$
 $\xrightarrow{+30\%} 123174169126932956.23$ $\xrightarrow{+22.2} 138559394707705927.02$
 $\xrightarrow{+30\%} 160126420865012843.10$ $\xrightarrow{+22.2} 181097312129127705.12$
 $\xrightarrow{+30\%} 206764347124516700.03$ $\xrightarrow{+22.2} 237466605763866116.66$
 $\xrightarrow{+30\%} 268893651261871710.04$ $\xrightarrow{+22.2} 312766607499121951.84$
 $\xrightarrow{+30\%} 351561746640433223.05$ $\xrightarrow{+22.2} 407048609839958537.40$
 $\xrightarrow{+30\%} 455030270632563190.97$ $\xrightarrow{+22.2} 527425192996146100.62$
 $\xrightarrow{+30\%} 591539351822332148.26$ $\xrightarrow{+22.2} 687935251046989920.81$
 $\xrightarrow{+30\%} 764001157369031792.74$ $\xrightarrow{+22.2} 906715826381328907.06$
 $\xrightarrow{+30\%} 997201504580741330.57$ $\xrightarrow{+22.2} 1189999014313727539.28$
 $\xrightarrow{+30\%} 1297361955954963730.74$ $\xrightarrow{+22.2} 1586998718617845801.07$
 $\xrightarrow{+30\%} 1684570542741452850.97$ $\xrightarrow{+22.2} 2059998935203219541.39$
 $\xrightarrow{+30\%} 2179942705563888706.26$ $\xrightarrow{+22.2} 2671999173764185403.81$
 $\xrightarrow{+30\%} 2833915517233055318.14$ $\xrightarrow{+22.2} 3479999439994641024.96$
 $\xrightarrow{+30\%} 3684090172402971913.57$ $\xrightarrow{+22.2} 4547999735992033282.45$
 $\xrightarrow{+30\%} 4769317224123863487.64$ $\xrightarrow{+22.2} 5947999964989643267.38$
 $\xrightarrow{+30\%} 6140112391361022532.99$ $\xrightarrow{+22.2} 7747999999999999999.99$

Q.76. Two articles are sold for Rs. 4752 each, on one, the seller gains 32% profit and the other he losses 28%, what is his overall gain or loss percentage, nearest to one decimal place?

Soln:-

<u>1st</u>	<u>2nd</u>
132%	72%
CP: 72	132
G : 11	

CP: 600 + 1100 = 1,700
 +32% (+192)
 792 + 792 = 1584
 116
 $\frac{116}{1700} \times 100 = 6.8\% \text{ loss}$

Q.77. Abhi bought two articles for Rs. 624. He sold one at a loss of 14% and the other at a profit of 14%. If the selling price both the articles is equals, then find the difference between their Cost prices.

Soln:-

<u>1st</u>	<u>2nd</u>
86%	114%
114	86
57 : 43	

100 units ——— 624
 14 units ——— 14 x 16.24
 = 87.36

Q.78. A Shopkeeper sold, two items, The selling Price of the first item equal to cost price of the Second item, He sold the first item at a profit of 20% and the second item at a loss percent?

Soln:-

	<u>CP</u>	<u>SP</u>
1st	5x5	6x5
2nd	$\frac{10 \times 3}{55}$	$\frac{9 \times 3}{57}$

$$\frac{2}{55} \times 100 = 3\frac{7}{11} \% \text{ Profit}$$

_____ X _____

Q.79. One trader calculates the percentage of profit on the buying price and the another calculates on the selling price are the same, then the difference of their actual profit is Rs. 85 and both claims to have made 20% profit, what is the selling Price of each?

Soln:-	<u>CP</u>	<u>SP</u>	<u>P</u>		<u>1st</u>	<u>2nd</u>
1st	5x5	6x5	5	) 1	$\frac{1}{5}$	$\frac{1}{5}$
2nd	4x6	5x6	6		CP	SP

ATQ.

1 unit ——— 85

30 units ——— Rs. 2550

_____ X _____

Q.80. A man sell two articles for 589 each, He Sells first article at 18.75% profit, At what loss Percentage he would have sold second articles,

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If there is neither profit nor loss in the whole transaction?

Soln:-	$\frac{CP}{16}$	$\frac{SP}{19}$	$18.75\% = \frac{3}{16}$ $\frac{22}{19}$
1st	16	19	
2nd	$\frac{22}{38}$	$\frac{19}{38}$	$\frac{3}{22} \times 100 = 13.63\%$

_____ X _____

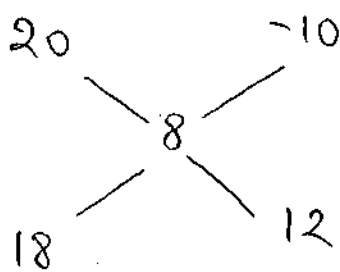
Q.81. A man sells three articles for Rs. 200 each. He sells first article at 27.27% loss and second article at 11.11% profit, if there is neither profit nor loss in the transaction, then find the cost price of 3rd article.

Soln:-	$\frac{CP}{11 \times 5}$	$\frac{SP}{8 \times 5}$	$27.27\% = \frac{3}{11}$ $11.11\% = \frac{1}{9}$
1st	11 x 5	8 x 5	
2nd	9 x 4	10 x 4	
3rd	$\frac{24}{120}$	$\frac{40}{120}$	
	Rs. 87	120	

_____ X _____

Q.82. A man purchased two articles for Rs. 500. He sold the first book at 20% profit while the other at 10% losses and gained only Rs. 40 in the whole transaction, By what percent is the cost price of the first book more / less than that of other?

Soln:-



Overall Profit %

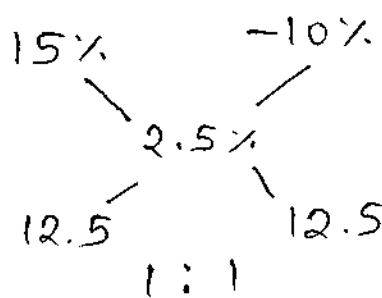
$$= \frac{40}{500} \times 100$$

$$= 8\%$$

$$\frac{1}{2} \times 100 = 50\% \text{ more}$$

Q. 83. Sushama bought 6 tables and 12 chairs for Rs. 12,000. She sold the tables at a profit of 15% and chairs at a loss of 10%. If her total gain was Rs. 300, then the cost price of the table was:

Soln:-



Overall Profit Percentage

$$= \frac{300}{12,000} \times 100 = 2.5\% \text{ Profit}$$

2 units	_____	12,000
1 unit	_____	6,000

Q. 84. Oil equal to 20% of the weight of groundnuts is extracted in a mill. The matter left after extraction is sold as cattle feed at a rate of Rs. 12.50 per kg. The groundnuts are bought at Rs. 20/kg. The processing cost is Rs. 5/kg. At what price (Rs. per kg) should the oil be sold to earn 20% profit on total cost (total cost = cost of groundnuts + processing cost)?

Soln:-

$$\begin{aligned} \text{SP} &= 20 \text{ kg} \times \text{Rs. } 20/\text{kg} \\ &+ 20 \text{ kg} \times \text{Rs. } 5/\text{kg} \\ &= 500 \end{aligned}$$

