

① loss 25%

$$\text{Selling Price} = 450 \text{ Rs.}$$
$$SP = \frac{CP(100 - 25\% \text{ loss})}{100}$$

$$450 = \frac{CP(100 - 25)}{100}$$

$$45000 = 100 CP - 25 CP$$

$$45000 = 75 CP$$

$$CP = \frac{45000}{75} = 600$$

$$CP = 600$$

② C.P. = 1200 rs.

Sold price = 1440 rs

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

$$= \frac{1440 - 1200}{1200} \times 100$$

$$= \frac{240}{1200} \times 100$$

$$= 20\%$$

③ C.P. = 800

S.P. = 960

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

$$\frac{960 - 800}{800} \times 100$$

$$\frac{960 - 800}{800} = \frac{160}{800} \times 100 = 20\%$$

$$\frac{160}{800} = 20\% \quad \text{CP} = \frac{800}{100} \times 100 = 800$$

$$\text{Profit \%} = 20\%$$

$$4) SP = 1200x.$$

$$1055 = 20\% \quad \text{CP} = \frac{100}{100 + 20} \times 100 = 83.33$$

$$SP = \frac{CP(100 - \% \text{ loss})}{100}$$

$$1200 = \frac{CP(100 - 20)}{100}$$

$$120000 = 100 CP - 20 CP = 80 CP \quad \text{CP} = 1500$$

$$120000 = 80 CP \quad CP = 1500$$

$$CP = \frac{120000 - 15000}{80000}$$

$$CP = 1500$$

$$5) CP = 400 \text{ rs}$$

$$SP = 480 \text{ rs}$$

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

$$= \frac{480 - 400}{400} \times 100$$

$$= \frac{80}{400} \times 100$$

20/06

$$6) \text{ net % change} = a + b + \frac{ab}{100}$$

$$= 20 + 10 - \frac{20 \times 10}{100}$$

$$= 30 - \frac{200}{100}$$

$$= 28$$

$$7) SP = 800$$

$$\text{discount} = 20\%$$

$$SP = CP(100 - 20\% \text{ loss})$$

$$800 = CP(100 - 20\%)$$

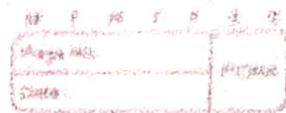
$$80000 = 100 CP - 20 CP$$

$$80000 = 80 CP$$

$$80 CP = 80000$$

$$CP = \frac{80000}{80}$$

$$CP = 1000$$



$$8) 180000 = 100 CP + 25 CP$$

$$180000 = 125 CP$$

$$CP = \frac{180000}{125}$$

$$P = 1440$$

$$9) CP = 1500 \text{ rs}$$

$$\text{discount} \% = 10\%$$

$$SP = \frac{CP(100 - 10\% \text{ loss})}{100}$$

$$SP = \frac{1500(100 - 10)}{100}$$

$$SP = \frac{1500 \times 90}{100}$$

$$SP = 135$$

$$10) CP = 150 \quad SP = 200$$

$$\text{Profit} = SP - CP$$

$$\text{Profit} = SP - CP$$

$$200 - 150$$

$$= 50$$

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

$$= \frac{50}{150} \times 100$$

$$= \frac{500}{15} = 33,33\%$$

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11) $\text{Markup \%} = \frac{\text{Profit \%} + \text{Discount \%}}{1 - \text{Discount \%}} \times 100$

$$= \frac{20\% + 15\%}{1 - \frac{15}{100}} \times 100$$

$$= \frac{35}{85/100} \times 100$$

$$= \frac{35}{85} \times 100$$

$$= \frac{3500}{85} \approx 33$$

$= 35\%$

12) $SP = 2250 \times$

$$\text{Profit \%} = 10\%$$

$$SP = CP(100 + \text{Profit \%})$$

$$2250 = \frac{CP(100 + 10)}{100}$$

$$225000 = 100 CP + 10 GP$$

$$225000 = 110 CP$$

$$CP = \frac{225000}{110}$$

$$CP = 2045 \text{ approx}$$

$$CP = 2000$$

3	4	5	6	7
Margin %	Profit %	SP	CP	

13) Profit % = 25% To find SP

COST price = 800 rs

$$SP = \frac{CP(100 + \text{Profit } \%)}{100}$$

$$SP = \frac{800(100+25)}{100}$$

$$SP = \frac{800(125)}{100}$$

$$SP = \frac{800 \times 125}{100}$$

$$SP = 1000 \text{ Rs}$$

14) SP = 15,000

Loss % = 10%

$$SP = \frac{CP(100 - \% \text{ loss})}{100}$$

$$15000 = \frac{CP(100 - 10)}{100}$$

$$15000 \times \frac{90}{100} = 90 \text{ CP}$$

$$1500000 = 90 \text{ CP}$$

$$CP = \frac{1500000}{90}, 16.666$$

$$CP = 16.666$$

$$15) MP = CP + 50\% \text{ of } CP$$

$$\text{Assume } CP = 100 \Rightarrow 100 + 50 \\ = 150$$

$$\text{Selling Price} = MP - 20\% \text{ of } MP \\ = 150 - 30 \\ = 120$$

$$\text{Profit} = \frac{SP - CP}{CP} \times 100 \\ = \frac{120 - 100}{100} \times 100 \\ = 20\%$$

$$16) SP = \frac{CP(100 + \text{Profit}\%)}{100}$$

$$SP = \frac{400(100 + 12)}{100}$$

$$SP = \frac{400 \times 112}{100}$$

$$SP = 448$$

$$SP = \frac{MP(100 - \text{Loss}\%)}{100}$$

$$448 = \frac{MP(100 - 5)}{100}$$

$$44800 = 95 MP$$

$$MP = \frac{44800}{95}$$

$$MP = 471.1$$

100P = 500

$$(17) CP = 480$$

$$SP = 576$$

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

$$= \frac{576 - 480}{480} \times 100$$

$$= \frac{96}{480} \times 100$$

$$= 20\%$$

$$(18) \text{ profit \%} = 50 \text{ rs}$$

$$CP = 500 \text{ rs}$$

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

$$= \frac{500 + 50}{500} \times 100$$

$$= 100\%$$

$$(19) \text{ profit \%} = 15\%$$

$$SP = 2300 \text{ rs}$$

$$SP = \frac{CP(100 + \% \text{ Profit})}{100}$$

$$2300 = \frac{CP(100 + 15)}{100}$$

$$230000 = 115 CP$$

$$CP = \frac{230000}{115}$$

$$CP = 2000$$

20)

$$CP = 750 \text{ rs}$$

$$SP = 900 \text{ rs}$$

$$\text{gain Percentage} = \frac{SP - CP}{CP} \times 100$$

$$\frac{900 - 750}{750} \times 100$$

$$= 200 \times 100$$

$$= 20\%$$

21)

$$SP = 640$$

$$\text{loss \%} = 20\%$$

$$SP = CP(100 - \% \text{ loss})$$

$$640 = \frac{CP(100 - 20)}{100}$$

$$640 = \frac{80 CP}{100}$$

$$64000 = 80 CP$$

$$CP = \frac{64000}{80}$$

$$CP = 800$$

22)

$$SP = 9600 \text{ rs}$$

$$\text{Profit \%} = 20\%$$

$$SP = \frac{CP(100 + 20\%)}{100}$$

$$9600 = \frac{CP(100 + 20\%)}{100}$$

$$960000 = 120 CP$$

$$CP = \frac{960000}{120}$$

$$CP = 8000 \text{ RS.}$$

23) $SP = 500$
 $\text{Profit \%} = 20\%$
 $SP = CP \left(100 + \frac{\% \text{ Profit}}{100}\right)$

$$500 = \frac{CP(100 + 20\%)}{100}$$

$$500 = \frac{120 CP}{100}$$

$$50000 = 120 CP$$

$$CP = \frac{50000}{120} = 416.6$$

$$CP = 416 \text{ APPROX}$$

$$CP = 420$$

24) $CP = 1500$
 $\text{Profit \%} = 20\% \text{ OF } 1500$
 $= 0.20 \times 1500$
 $= 300$

$$SP = 1500 + 300$$

$$= 1800$$

$$Loss \% = 10\% \text{ OF } 1500$$

$$= 0.10 \times 1500$$

$$= 150$$

$$SP = 1500 - 150 = 1350$$

$$\text{Total Cost price} = 1500 + 1500 = 3000$$

$$\text{total SP} = 1800 + 1350$$

$$= 3150$$

$$\text{Profit} = 3150 - 3000$$

$$= 150$$

$$\text{Profit} = 5\%$$

25) $SP = 1250$

$$\text{Loss} = 12\%$$

$$SP = \frac{CP(100 - \text{Loss \%})}{100}$$

$$1250 = \frac{CP(100 - 12)}{100}$$

$$125000 = 88 CP$$

$$CP = \frac{125000}{88} = 1420.45$$

$$CP = 1420.45$$

$$CP = 1400$$

26) Assume Cost \% Price = 125000

$$\text{total quarterly} = 2 \text{ units}$$

$$\text{total} = 2 \times 1$$

$$= 2 \text{ rs}$$

Selling price: half for the quantity

$$= 2 \times 1 = 2$$

SP for the remaining half (unit)

Total Selling price = 2 + 1 = 3

$$\begin{aligned} \text{Profit} &= \text{SP} - \text{CP} \\ &= 3 - 2 \\ &= 1 \text{ rupee} \end{aligned}$$

$$\begin{aligned} \text{Profit \%} &= \frac{1}{2} \times 100 \\ &= 50\% \end{aligned}$$

$$27) x \times \frac{20}{100} = (x + 0.2x) - x$$

Sum of the number of the result

$$\begin{aligned} &= x + 0.2x \\ &= 1.2x \end{aligned}$$

$$28) \text{CP} = x$$

$$\text{SP} = 50$$

$$\begin{aligned} 100\% \text{ of the Selling Price} &= \frac{50}{5 \times 100} \\ &= \frac{5000}{5} \\ &= 1000 \end{aligned}$$

cost price = 80% of the selling price

$$100\% \text{ of the cost price} = \frac{1000}{80}$$

$$\text{Additional ad. at 12.5\%} = \frac{1000}{80} \times 12.5$$

$$= 125$$

$$= CP - \text{loss}$$

$$= 1250 - 1000$$

$$= 250$$

$$\text{final loss} = 250 + 50 \\ = 300$$

Q9) Assume cost price = 100
cost price of 20% of goods is = 20

SP of 20% goods is 20%

$$= 20 \times 150 / 100 \\ = \frac{15}{100} \times 20 \\ = 30$$

CP of 20% goods 40

SP of 40% goods is RS

$$40 \times 80 / 100 = 32$$

cost price of 20% goods is RS 20

Selling Price of 20% goods RS 20

$$= \frac{95}{20} \times 100$$

$$= 19$$

Selling Price = 20

$$\text{total selling Price} = 30 + 32 + 19 + 20 \\ = 101$$

$$\text{Profit Percentage} = \frac{(101 - 100)}{100} \times 20$$

$$= 1\%$$

30) Selling expense = 50 rupees

Selling expense \times 10% max than the loss

$$50 = L + 0.1L \quad \text{or} \quad 50 = 1.1L$$

$$= 1.1L \quad \text{or} \quad L = \frac{50}{1.1}$$

$$L = \frac{50}{1.1} = 45.45 \quad \text{or} \quad L = \frac{50}{1.1} = 45.45$$

$$= 45.45 \text{ rupees}$$

$$\text{Loss \%} = \frac{L}{\text{Loss} + \text{Price}} \times 100$$

$$= \frac{45.45}{6000} \times 100$$

$$= 7.5 \%$$

\$ profit on 5.1 article.

= cost price of 2 article.

$$\text{Profit} = 2C$$

$$Sp = CP + \text{Profit}$$

$$= C + 2C$$

$$= 3C$$

$$\text{Profit \%} = \frac{2C}{C} \times 100$$

$$= 200 \%$$

31)

profit on SI article

= cost price of 2 article

$$\text{profit} = 2C$$

$$\begin{aligned} Sp &= Cp + \text{profit} \\ &= Cp + 2C \\ &= 3C \end{aligned}$$

$$\text{profit}_1 = \frac{2C}{C} \times 100$$

$$= 200\%$$

32)

$$Cp_1 = 100$$

$$\text{profit}_2 = 20\%$$

$$Sp = ?$$

$$Cp = Cp_1 + \text{profit}_2$$

$$\begin{aligned} &= Cp_1 + \text{profit}_2 \\ &= 100 + 20 \\ &= 120 \end{aligned}$$

$$\text{Actual CP} = ?$$

$$\text{profit} = 500$$

$$\text{profit} = 20\% \text{ of CP}$$

$$CP = \frac{20}{100} \times 500$$

$$CP = 2500$$

$$5p = 2500 + 500 = 3000$$

now CP after reduction

$$= 80\% \times 2600$$

$$= 0.8 \times 2500$$

$$= 2000 \pi$$

$$\begin{aligned} \text{New Profit} &= \text{Selling Price} - \text{New CP} \\ &= 3000 - 2000 \\ &= 1000 \end{aligned}$$

$$33) GP = 100$$

$$\text{Profit \%} = 25 \%$$

$$\underline{SP = CP + 2S \cdot 1\%}$$

$$= 100 + 25$$

$$= 125$$

$$\begin{aligned}\text{New profit} &= 125 + 95 \\ &= 255\end{aligned}$$

$$\text{New profit \%} = \frac{35}{90} \times 100$$

$$= \frac{35}{9}$$

Profit = 38.8 %

9

$$34) CP = 100$$

$$\text{Profit \%} = 500 \%$$

$$SP = 100 / 500$$

$$= 600$$

$$CP \text{ is doubled} = 2 \times 100 = 200 \%$$

$$SP \text{ is halved} = \frac{600}{2} = 300 \%$$

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

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

$$\text{Profit} = 50 \%$$

35) Required decrease = increment

$$= \frac{100 + \text{increase}}{\text{Price}} \times 100$$

$$= \frac{125}{125} \times 100$$

$$= \frac{2500}{125}$$

$$\text{Required decrease} = 20 \%$$

36) $CP(I) = 100$

$CP(II) = 1500$

Profit on selling
15 articles

$$= \text{Cost price of 15 articles} = 200$$

$$\text{Total SP} = CP + \text{Profit}$$

$$= 1500 + 200$$

$$SP = 1700$$

$$\text{Profit \%} = \frac{200}{1500} \times 100$$

$$\text{Profit \%} \rightarrow 13.33 \%$$

37) discount = x

marked price = $5x$

$$\begin{aligned}SP &= \text{Named price} - \text{discount} \\&= 5x - x \\&= 4x\end{aligned}$$

SP = 4 times the discount

38) $x = 20\% \text{ of } 12\% \text{ of } 120\% \text{ of } 6250$

$$\begin{aligned}x &= \frac{20}{100} \times \frac{12}{100} \times \frac{120}{100} \times 6250 \\&= \frac{180000}{1000}\end{aligned}$$

$$x = 180$$

39) CP = 500

Profit = 100 %

$$SP = CP + \text{Profit}$$

$$\begin{aligned}&= 500 + 500 \\&= 1000\end{aligned}$$

marked price = x

discount = 35%

$$SP = mp - 35\% \text{ of } mp$$

$$1000 = x - 0.35x$$

$$1000 = 0.65x$$

$$x = \frac{1000}{0.65}$$

$$x = 1538.46$$

$$\boxed{x = 1538.46}$$

40) A is 25% more than B.

$$B = 100$$

A is 25% more than B

$$A = 100 + 25$$

$$A = 125$$

% B by which A is smaller

$$= \frac{A - B}{A} \times 100$$

$$= \frac{125 - 100}{125} \times 100$$

$$= \frac{25}{125} \times 100$$

$$= \frac{2500}{125} 20$$

diff f = 20%

41) CP = m

$$\text{discount} = 2 \times CP = 2x$$

$$MP = 10,000$$

$$SP = CP$$

$$SP = MP - \text{discount}$$

$$x = 10000 - 2m$$

$$5x = 10000$$

$$\boxed{2x = 3333.33}$$

42) $CP \leq 30\% \text{ of } SP$

discount = $40\% \text{ of } SP$

$$MP = 12,600$$

$$CP = ?$$

$MP = SP + \text{discount}$

$$12,600 = x + 0.4x$$

$$x = \frac{12600}{1.40}$$

$$\boxed{x = 9000}$$

$CP = 30\% \text{ less than } SP$

$$CP = SP - 30\% \text{ of } SP$$

$$CP = 9000 - 2700$$

$$CP = 6300$$

43) $33.\overline{3}\% \text{ of a no is } 26 \text{ more than } 16.\overline{6}\% \text{ of the number } 120\% \text{ of the number}$

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

$$2x = 120 + x$$

$$2x - x = 120$$

$$x = 120$$

$$\frac{120}{100} \times 120 = 144$$

$$x = 144$$

44) num of 20% of a no is 20 more than
20% of another no 20

$$\frac{20}{100}x = 20 + \frac{20}{100} \times 20$$

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

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

$$x = 24 \times 5$$

$$x = 120$$

45) initial = x

1st step = $2x$

then triple = $6x$

Second step = $12x$

then triple = $36x$

3rd step = $72x$

then triple = $46x$

$$\therefore \text{change} = \frac{46x - x}{x} \times 100\%$$

$$= \frac{45x}{x} \times 100\%$$

$$= 45 \times 100\%$$

$$= 4500\%$$

$$\therefore \text{change} = 3000\%$$

46) 235 be reduced to make it 65% of itself
 65% of 235

$$\frac{65}{100} \times 235 = 152.5$$

$$\text{reduction} = 235 - 152.5$$

$$\text{reduction} = 82.5$$

47) 90% of 900 of 9000% of 9

$$\frac{90}{100} \times \frac{900}{100} \times \frac{9000}{100} \times 9$$

$$= \frac{9}{10} \times \frac{9}{1} \times \frac{90}{1} \times 9$$

$$= 6561$$

48) initial salary = 100 units

25 employee each employee earns
 4 unit

Total Salary before = 100 units

employee remaining = 25 - 13 = 12

total salary of remaining employee
 employee before remaining

$$12 \times 4 = 48 \text{ units}$$

Now salary increased by 25% to

$$= 48 \times 1.25$$

$$= 59.52 \text{ units}$$

$$\begin{aligned}\% \text{ change} &= \frac{59 - 52}{100} \times 100 \\ &= \frac{7}{100} \times 100 \\ &= -40.48\end{aligned}$$

total expense decreased by 40.48%