

Q.

$$CP \perp = 100$$

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

$$SP = ?$$

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

$$= 100 + 20$$

$$= 120$$

$$\text{actual CP} = x$$

$$\text{profit} = 500$$

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

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

$$CP = 2500$$

$$SP = 2500 + 500 = 3000$$

new CP after 20% reduction

$$= 2500 - \frac{20}{100} \times 2500 = 2000$$

$$= 2500 - 500$$

$$= 2000$$

Profit

Selling price remains the same, the new

$$3000 - 2000 = 1000$$

Q.

$$CP = 100$$

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

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

$$= 100 + 25$$

$$= 125$$

(2)

$$\text{New CP} = 100 - \frac{10}{100} \times 100 = 90$$

new profit

$$\begin{aligned}\text{New profit} &= 125 - 95 \\ &= ₹ 35\end{aligned}$$

new profit %

$$\frac{35}{90} \times 100 = 38.8\%$$

$\text{profit \%} = 38.8\%$

Q. CP = 100

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

$$\begin{aligned}SP &= 100 + 500 \\ &= ₹ 600\end{aligned}$$

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

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

$$\text{New profit} = 300 - 200 = ₹ 100$$

$$\text{new profit \%} = \frac{100}{200} \times 100 = 50\%$$

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

Q : increases the price of sugar by = 25%.

1(B)

Required decrease = Increase price

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

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

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

g) $\text{CP(I)} = 100$

$\text{CP(II)} = 1500$

profit on selling 15 articles =

cost price of 2 articles = 200

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

$$= 1500 + 200$$

$$\boxed{\text{SP} = 1700}$$

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

$$\boxed{\text{Profit \%} = 13.33\%}$$

④ 40% of a number \boxed{A} is 50% of a number \boxed{B} find $a:b$

(4)

$$40\% \text{ of } a = 50\% \text{ of } b$$

$$\frac{40}{100} a = \frac{50}{100} b$$

$$\frac{2}{5} a = \frac{1}{2} b$$

$$4a = 5b$$

$$\boxed{a:b = 5:4}$$

Q. discount x

$$\text{Marked price} = 5x$$

$$\begin{aligned} SP &= \text{Marked Price} - \text{Discount} \\ &= 5x - x = 4x \end{aligned}$$

$$\boxed{SP = 4 \text{ times the discount}}$$

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

$$x = \frac{20}{100} \times \frac{12}{100} \times \frac{120}{100} \times 6250$$

$$= \frac{20 \times 12 \times 120}{100^3} \times 6250$$

②

$$= \frac{1800000}{1000}$$

⑤

$$\boxed{TR = 180}$$

Q. CP = ₹ 500

Profit = 100%

$$\begin{aligned} SP &= CP + \text{profit} \\ &= 500 + 500 \\ &= ₹ 100 \end{aligned}$$

Marked Price = x

Discount = 35%

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

$$1000 = x - 0.35x$$

$$1000 = 0.65x$$

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

$$x = 1538.46$$

$$\boxed{TR \approx 1539}$$

Q A is 25% more than B

$$B = 100$$

A is 25% more than B

$$A = 100 + 25$$

$$\boxed{A = 125}$$

% B by which A is smaller

(b)

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

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

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

$$\boxed{\text{diff} = 20\%}$$

Q. CP = x

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

$$MP = 10,000$$

$$SP = CP$$

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

$$x = 10000 - 2x$$

$$3x = 10,000$$

$$\boxed{x = 3333.33}$$

Q. CP < 20%, SP

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

$$MP = 12,600$$

$$CP = ?$$

$$MP = SP + \text{Discount}$$

(A)

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

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

$$x = 9000$$

CP = 30% less than SP

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

$$CP = 9000 - 2700$$

$$\boxed{CP = 6300}$$

Q. 33.33% of a number is 20 more than 16.66% of the number

120% of the number.

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

$$2x = 120 + x$$

$$2x - x = 120$$

$$\boxed{x = 120}$$

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

$$\boxed{x = 144}$$

Q. num of 20% of a number is 20
more than 20% of another no. 20

1(B)

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

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

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

$$x = 24 \times 5$$

$$x = 120$$

Q. initial = x

first step = $2x$

then triple = $6x$

second step = $12x$

then triple = $36x$

3rd step = $72x$

then triple = $216x$

$$\% \text{ change} = \frac{216x - x}{x} \times 100$$

$$= \frac{215x}{x} \times 100$$

$$= 215 \times 100 \%$$

$$= 21500 \%$$

$$7. \% \text{ change} = 2000 \%$$

Q. 234 be reduced to make it 65% of itself.

(3)

65% of 234

$$\frac{65}{100} \times 234 = 152.1$$

$$\text{Reduction} = 234 - 152.1$$

$$\boxed{\text{Reduction} = 81.9}$$

Q. 90% of 900% of 900% of 9

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

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

$$= 9 \times 1 \times 9 \times 9$$

$$\boxed{T = 6561}$$

Q. initial salary = 100 units

25 employee each employee earns
4 units

Total salary before layoffs = 100 units

employee remaining

$$25 - 13 = 12$$

18

Total salary of remaining employees
before remaining

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

New salary after 25% increment

$$\begin{aligned} &= 48 \times 1.25 \\ &= 59.52 \text{ units.} \end{aligned}$$

% change

$$\begin{aligned} &= \frac{59.52 - 100}{100} \times 100 \\ &= \frac{-40.48}{100} \times 100 \end{aligned}$$

$$\boxed{\begin{array}{l} + \\ -40.48 \end{array}} = -40.48$$

Total expenditure decreased by 40.48%

Q.

$$x + \frac{20}{100} x = 20.2x$$

sum the number & the result

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

$$\text{double the sum} : 2 \times 1.22 \\ = 2.42$$

$$2.42 = 490$$

$$x = \frac{490}{2.4}$$

$$x = \frac{490}{2.4} = 204.17$$

Q. $CP = \frac{SP}{1 - \text{loss \%}}$

$$= \frac{450}{1 - 0.25} = \frac{450}{0.75}$$

$$\boxed{CP = 600}$$

Q.

$$\begin{aligned} \text{Profit} &= SP - CP \\ &= 1440 - 1200 \\ &= 240 \end{aligned}$$

$$\text{Profit \%} : \left(\frac{\text{Profit}}{CP} \times 100 \right)$$

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

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

8. Profit = SP - CP

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

$$= \frac{760 - 800}{800} \times 100$$

$$= \frac{160}{800} \times 100$$

Profit % = 20%

9. CP = $\frac{SP}{1 - loss\%}$

$$CP = \frac{1200}{1 - 0.20} = \frac{1200}{0.80} = 1500$$

9.

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

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

Profit % = 20%

Q.

Net quantity

11

Net discount

$$= A + B - \left(\frac{A \times B}{100} \right)$$

$$A = 20\% \quad B = 10\%$$

$$= (20 + 10) - \left(\frac{20 \times 10}{100} \right)$$

$$\boxed{I = \frac{30}{28\%} - 2}$$

Q.

$$MP = \frac{SP}{1 - \text{discount \%}}$$

$$MP = \frac{800}{1 - 0.2} = \frac{1800}{0.8}$$

$$\boxed{MP = 1000}$$

Q.

$$CP = \frac{SP}{1 + \text{Profit \%}}$$

$$= \frac{1800}{1 + 0.25}$$

$$= \frac{1800}{1.25}$$

$$\boxed{CP = 1440}$$

8

$$SP = MP \times (1 - \text{Discount \%})$$

$$SP = 1500 \times (1 - 0.10)$$

$$= 1500 \times 0.9$$

$$SP = 1350$$

Q. CP of 10 pens = 150

SP of 10 pens = 200

$$\text{Profit \%} = \frac{50}{150} \times 100$$

$$\text{Profit} = 33.33\%$$

Q. $CP = \frac{SP}{1 + \text{Profit \%}}$

$$SP = MP(1 - 0.15)$$

$$SP = x \times 1.20$$

$$MP \times 0.85 = x \times 1.20$$

$$MP = \frac{1.20}{0.85} \times$$

$$MP = 1.41 \times$$

$$\text{Margin \%} = (1.41 - 1) \times 100$$

$$= 41\%$$

$$\approx 40\%$$

$$Q. CP = \frac{SP}{1 + \text{Profit \%}}$$

$$CP = \frac{2250}{1.10}$$

$$CP = 2045.45 \approx 2000$$

$$Q. SP = CP (1 + \text{Profit})$$

$$SP = 800 (1 + 0.25)$$

$$= 800 \times 1.25$$

$$SP = 1000$$

$$Q. CP = \frac{SP}{1 - \text{Loss \%}}$$

$$= \frac{15000}{0.90}$$

$$CP = 16666.67 \approx 16000$$

$$Q. CP = x$$

$$MP = 1.50x$$

SP after discount 20%

$$SP = 1.50x (1 - 0.20)$$

$$= 1.50x \times 0.80$$

$$SP = 1.20x$$

$$\text{Profit \%} : \left(\frac{SP - CP}{CP} \times 100 \right)$$

$$= \frac{1.20x - x}{x} \times 100$$

+ Profit % = 20%

Q CP = 400
MP = x

SP after 5% discount

$$SP = x(1 - 0.05)$$

$$= x \times 0.95$$

Since profit 12%.

$$SP = 400 + 1.12 = 448$$

$$x \times 0.95 = 448$$

$$x = \frac{448}{0.95}$$

$$x = 471.58 \approx \underline{\underline{500}}$$

Q.

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

$$\text{Profit \%} = \left(\frac{96}{480} \times 100 \right) : 20\%$$

9

$$\text{Profit} = 50$$

$$CP = 500$$

11

$$\text{Profit \%} = \left(\frac{50}{500} \times 100 \right) \approx \underline{\underline{10\%}}$$

9

$$CP = \frac{SP}{1 + \text{Profit \%}}$$

$$CP = \frac{2300}{1.15}$$

$$CP = 2000$$

9 Profit = 900 - 750 = 150

$$\text{Profit \%} = \left(\frac{150}{750} \times 100 \right)$$

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

9

$$CP = \frac{SP}{1 - \text{Loss \%}}$$

$$CP = \frac{640}{0.80}$$

$$CP = 800$$

Q

$$CP = \frac{SP}{1 + \text{profit \%}}$$

$$CP = \frac{9600}{1.20}$$

$$\boxed{CP = 8000}$$

Q

$$CP = \frac{500}{1.20}$$

$$\boxed{CP = 416.67} \approx \underline{400}$$

Q Bought for 1500 sold at profit 20%.

$$SP = 1500 \times 1.20$$

$$\boxed{SP = 1800}$$

2nd article

bought for 1500 sold at 10% loss

$$SP = 1500 \times 0.90$$

$$\boxed{SP = 1350}$$

$$\text{Total CP} = 1500 + 1500 = 3000$$

$$\text{Total SP} = 1800 + 1350 = 3150$$

$$\text{Profit} = 3150 - 3000 = 150$$

$$\text{Profit \%} = \left(\frac{150}{3000} \times 100 \right)$$

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

$$Q \quad CP = \frac{SP}{1 - \text{lose \%}}$$

$$= \frac{1250}{0.88}$$

$$TCP = 1420.45 \quad \approx 1450$$

Q SP = ? for 1 unit

cost of 1 unit = x

0.5 units are sold but double the rate

$$SP = 2x \times 0.5 \\ = x$$

$$x - 0.5x = 0.5x$$

$$\text{Profit \%} = \left(\frac{0.5x}{0.5x} \times 100 \right)$$

$$+ \text{profit \%} = 100\%$$

Q. number x

$$\text{sum} = x + 0.2x$$

$$+ \text{sum} = 1.2x$$

$$x = 204.17$$

$$\text{double value} = 2 \times 1.2x \\ = 2.4x$$

$$2.4x = 490$$

$$x = \frac{490}{2.4}$$

Q

$$SP = 50$$

$$CP = \frac{SP}{1 - 0.2}$$

$$CP = \frac{50}{0.8} = 62.5$$

Selling cost = 5% of SP

$$= \frac{5}{100} \times 50$$

$$SC = 2.5$$

$$\begin{aligned} \text{Actual cost price} &= CP + SC \\ &= 62.5 + 2.5 \end{aligned}$$

$$\boxed{\text{Actual cost price} = 65}$$

$$\boxed{\text{Loss} = 65 - 50 = 15}$$

Q.

Total cost 100 for 20 goods (₹ 50 each)

first half (50%) sold at 20% loss

$$\boxed{SP_1 = 50 \times 0.8 = 40}$$

second half (50%) 50% profit

$$\boxed{SP_2 = 50 \times 1.5 = 75}$$

$$\boxed{\text{total SP} = 40 + 75 = 115}$$

$$\boxed{\text{Profit} = 115 - 100 = 15}$$

$$\boxed{\text{Profit \%} = \frac{15}{100} \times 100 = 15\%}$$

g) $\text{Loss} = x$

$$\begin{aligned}\text{Expense} &= x + 10\% \text{ of } x \\ &= 1.1x\end{aligned}$$

$$\text{Expense} = 50$$

$$1.1x = 50$$

$$x = \frac{50}{1.1}$$

$$\boxed{x = 45.45}$$

$$\text{Loss \%} = \frac{45.45}{6000} \times 100$$

$$\boxed{\text{Loss \%} = 0.76\%}$$

g) CP of 1 article = x

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

$$\text{SP} = x + 2x = 3x$$

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

$$\boxed{\text{Profit \%} = 200\%}$$