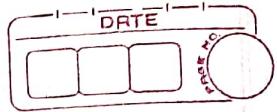


Aptitude Question Bank



Profit, Loss, Percentage.

- ① If an article is sold at a loss of 25%, and the selling price is ₹450, find the cost price.

a) ₹500 b) ₹550 c) ₹600 d) ₹650



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

$$\text{Selling Price} = 450$$

$$(450 \times \frac{25}{100}) + 450 = 900$$

formula to calculate cost price

$$(\frac{900 - SP}{SP}) \times 100 = (1 - \frac{\text{Loss}\%}{100}) \times CP$$

$$(450 \div 1)(1 - \frac{25}{100}) \times CP$$

$$450 = 0.75 \times CP$$

$$0.75 \times 900 = 675$$

$$CP = \frac{450}{0.75}$$

$$CP = 600$$

Ans: c) 600

- ② A person bought an item for ₹1200 and sold it for ₹1440. What is the profit percentage?

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

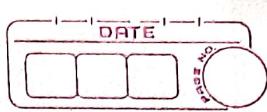
$$\rightarrow \text{Profit} = 1440 - 1200 = 240 \text{ ₹}$$

$$\text{Cost Price (CP)} = 1200$$

$$\text{Selling Price (SP)} = 1440$$

Calculate the profit =

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



$$\text{Profit} = 1440 - 1200 = 240 \text{ £}$$

Calculate the profit percentage using the formula.

$$\text{Profit Percentage} = \left(\frac{\text{Profit}}{\text{CP}} \right) \times 100$$

$$= \left(\frac{240}{1200} \right) \times 100$$

$$= 0.2 \times 100 = 20\%$$

Ans: c) 20%

- ③ IF the selling price of an item is £960 and the cost price is £800, what is the profit percentage?

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

$$\text{Selling Price} = 960$$

$$\text{Cost Price} = 800$$

Calculate the profit

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

$$= 960 - 800$$

$$= 160$$

Calculate the profit percentage using the formula

$$\text{Profit Percentage} = \left(\frac{\text{Profit}}{\text{CP}} \right) \times 100$$

$$= \left(\frac{160}{80} \right) \times 100$$

$$= 0.2 \times 100 = 20\%$$

Ans: b) 20%



- (4) A shopkeeper sells a fan at ₹1200 with a loss of 20%. Find the cost price.

a) 1400, b) 1500, c) 1600, d) 1700

$$\text{Selling Price} = 1200$$

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

$$\text{Cost Price} \rightarrow ?$$

calculate the cost price

$$SP = \left(1 - \frac{\text{Loss \%}}{100}\right) \times CP$$

$$1200 = \left(1 - \frac{20}{100}\right) \times CP$$

$$1200 = 0.8 \times CP$$

$$CP = \frac{1200}{0.8}$$

$$\therefore CP = 1500$$

Ans: b) 1500

- (5) If the cost price of an article is ₹400 and it is sold for ₹480, what is the profit percentage?

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

$$\text{Cost Price} = 400$$

$$\text{Selling Price} = 480$$

calculate the profit $\Rightarrow SP - CP$

$$\text{Profit} = 480 - 400$$

$$\text{Profit} = 80$$

calculate the profit percentage.

Profit Percentage = $\left(\frac{\text{Profit}}{\text{CP}} \right) \times 100$

$$= \left(\frac{80}{400} \right) \times 100$$

$$= 0.2 \times 100$$

Ans: b) 20%

(c) A trade gives two successive discounts of 20% and 10%.

Find the net discount percentage.

- a) 28%. b) 30%. c) 32%. d) 36%.

First discount = 20%.

Second discount = 10%.

Net discount Percentage = $A + B - \frac{A \times B}{100}$ (8)

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

$$B = 10\%$$

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

$$= 20 + 10 - 2$$

$$= 28\%$$

Ans: a) 28%

7 A man sold a shirt for ₹ 800 after giving a 20% discount. Find the marked price.

- a) 900 b) 1000 c) 1100 d) 1200

→

Selling price = ₹ 800

Discount = 20%.

SP = M.P. - Discount

Formula to find the marked price

$$SP = M.P. \left(1 - \frac{\text{Discount \%}}{100}\right)$$

$$800 = \left(1 - \frac{20}{100}\right) M.P.$$

$$800 = 0.8 \times M.P.$$

Rearranged to find the marked price.

$$M.P. = \frac{800}{0.8}$$

Ans: b) 1000

8 A watch is sold for ₹ 1800 with a 25% profit. Find the cost price.

- a) 1200 b) 1300 c) 1400 d) 1500 e) 1440.

Selling price = ₹ 1800

Profit = 25%.

Formula calculate cost price

$$SP = \left(1 + \frac{\text{Profit \%}}{100}\right) \times CP$$

$$1800 = \left(1 + \frac{25}{100}\right) \times CP \quad \text{or} \quad 1800 = 1.25 \times CP$$

$$1800 = 1.25 \times CP \quad \text{or} \quad CP = \frac{1800}{1.25}$$

Rearrange to find the cost price

$$CP = \frac{1800}{1.25} = 1440$$

$$CP = 1440$$

\therefore Ans : e) 1440

- ⑨ A shopkeeper marks an article at ₹ 1500 and allows a 10% discount. Find the selling price.

a) 1300 b) 1350 c) 1400 d) 1450.

Marked price = 1500

Discount = 10%.

Formula to find the selling price after a discount.

$$\text{Selling price} = SP = M.P. \left(1 - \frac{\text{Discount \%}}{100}\right)$$

$$SP = \left(1 - \frac{10}{100}\right) \times 1500$$

$$= 0.9 \times 1500$$

$$= 1350$$

\therefore Ans : b) 1350

- ⑩ A merchant buys 10 pens for ₹ 150 and sells them for 200. What is his profit percentage?

Q) 25%. b) 30%. (c) 33.33%. d) 40%.

$$\text{cost price} = 150 \times 20 = 300$$

$$\text{selling price} = 200$$

selling price is 60% above cost price

Calculate the profit % = ?

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

$$= 200 - 150$$

$$= 50$$

calculate the profit percentage.

$$\text{overall profit percentage} = \frac{\text{Profit}}{\text{CP}} \times 100\%$$

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

$$= 0.3333 \times 100$$

$$= 33.33\%$$

Ans: (c) 33.33%

11) A trader gives a 15% discount on an item and still makes a profit of 20%. What is the markup percentage?

- a) 30%. b) 35%. c) 40%. (d) 45%.

$$\text{Discount} = 15\%$$

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

$$\text{Markup percentage} = \frac{\text{Profit percentage} + \text{Discount percentage}}{100 - \text{Discount percentage}}$$



$$\text{Markup Percentage} = \left(\frac{20 + 15}{100 - 15} \right) \times 100$$

$$= \left(\frac{35}{85} \right) \times 100$$

$$= 0.4118 \times 100 = 41.18\%$$

$$\therefore \text{Ans} = 40\% (41.18\%)$$

∴ Ans = 40% (41.18%)

∴ Ans = 40% (41.18%)

- (12) A table is sold for ₹ 2250 at a 10% profit. What is the cost price? (A) 2000 (B) 2020 (C) 2045.4 (D) 2100
a) 1800 b) 1900 c) 2000 (2045.4) d) 2100

Calculate cost price: Cost price + Profit = Selling price

$$2250 = 1.1 \times \text{Cost Price}$$

$$\text{Cost Price} = \frac{2250}{1.1} = 2045.45$$

∴ Ans = 2000 (2045.45)

- (13) If a shopkeeper wants a profit of 25% on an item that costs ₹ 800, what should be the selling price?
a) 900 b) 1000 c) 1050 d) 1100

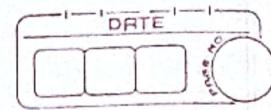
$$\text{Selling Price} = \text{Cost Price} \times (1 + \text{Profit Percentage})$$

$$\text{Selling Price} = 800 \times (1 + 0.25)$$

$$= 800 \times 1.25$$

$$= 1000$$





14

A refrigerator is sold for ₹ 15000 at a loss of 10%.
Find the cost price.

- a) 16500 b) 17000 c) 16000 d) 16800



$$\text{Selling price} = (1 - \text{loss percentage}) \times \text{cost price}$$

$$15000 = (1 - 0.10) \times \text{cost price}$$

$$15000 = 0.90 \times \text{cost price}$$

$$\text{Cost price} = 15000$$

$$= \frac{15000}{0.90} = 16666.67$$

$$= 16,666.67$$

\therefore Ans: a) 16500 (16667)

15

An article is marked 50% above the cost price and then sold at a discount of 20%. What is the profit percent?
a) 20% b) 25% c) 30% d) 35%



$$\text{Cost price} = 100$$

$$\text{Marked price} = 100 + 50\% \text{ of } 100$$

$$= 100 + 50$$

$$= 150$$

Calculate the selling price

$$\text{Selling price} = 150 - 20\% \text{ of } 150$$

$$= 150 - 30$$

$$(120 \times \frac{1}{100} + 1) \times 100 = 120$$

Calculate the profit

$$\text{Profit} = \text{Selling price} - \text{Cost price}$$

$$= 120 - 100$$

$$= 20$$



Calculate the profit percentage in each A

$$\text{Profit Percentage} = \left(\frac{\text{Profit}}{\text{Cost Price}} \right) \times 100$$

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

$$= 20\%$$

Ans: a) 20%

- (k) A dealer makes a profit of 12% after allowing a 5% discount. Find the marked price of an article whose cost price is ₹ 400.

a) 500 (b) 510 (c) 520 (d) 530.

$$\text{Cost price} = 400$$

dealer makes a 12% profit

A 5% discount is allowed on the marked price.

Calculate the selling price

$$\text{Selling price} = \text{Cost price} \times (1 + \text{Profit percentage})$$

$$\begin{aligned} &= 400 \times (1 + 0.12) \\ &= 400 \times 1.12 \\ &= 448 \end{aligned}$$

Find the marked price.

$$\text{Selling price} = \text{Marked price} \times 0.95$$

$$448 = \text{Marked price} \times 0.95$$

$$\begin{aligned} \text{Marked price} &= 448 \\ &\quad \text{---} \\ &\quad 0.95 \\ &= 471.57 \end{aligned}$$

Ans: a) 471.57

(17)

A book is bought for ₹ 480 and sold for ₹ 576. What is the profit percentage?

- a) 15%. b) 18%. c) 20%. d) 25%.



$$\text{Profit Percentage} = \left(\frac{\text{Selling Price} - \text{Cost Price}}{\text{Cost Price}} \right) \times 100$$

Cost Price = 480

Selling Price = 576

Calculate the profit = 576 - 480

$$= 96$$

Calculate the profit percentage, which is

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

$$= 0.2 \times 100$$

$$= 20\%$$

∴ Ans : c) 20%

(18)

If a profit of ₹ 50 is made on an article whose cost price is ₹ 500, what is the profit percentage?

- a) 8%. b) 9%. c) 10%. d) 12%.



$$\text{Profit Percentage} = \left(\frac{\text{Profit}}{\text{Cost Price}} \right) \times 100$$

$$\text{Profit} = 50$$

$$\text{Cost Price} = 500$$

$$\text{Profit Percentage} = \left(\frac{50}{500} \right) \times 100$$

$$= 0.1 \times 100$$

$$= 10\%$$

∴ Ans : c) 10%.



- (19) A shopkeeper sells a cycle at a 15% profit and the selling price is ₹2300. Find the cost price.
- a) 1900 b) 2000 c) 2100 d) 2200

$$\text{Selling Price} = \text{Cost Price} \times (1 + \text{Profit Percentage})$$

$$2300 = \text{Cost Price} \times (1 + 0.15)$$
$$= \text{Cost Price} \times 1.15$$

$$\text{Cost Price} = \frac{2300}{1.15} = 2000$$

∴ Ans : b) 2000

- (20) The cost price of an article is ₹750 and it is sold at ₹900. What is the gain percentage?

- a) 15% b) 18% c) 20% d) 25%

$$\text{Gain Percentage} = \left(\frac{\text{Selling Price} - \text{Cost Price}}{\text{Cost Price}} \right) \times 100$$

$$\text{Cost Price} = 750$$
$$\text{Selling Price} = 900$$

Calculate the gain

$$= 900 - 750 = 150$$

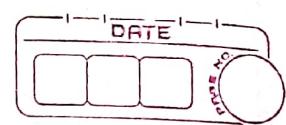
Calculate the gain percentage.

$$\text{Gain Percentage} = \left(\frac{150}{750} \right) \times 100$$

$$= 0.2 \times 100$$

$$= 20\%$$

∴ Ans : c) 20%



- (21) A man sells an item at 20% loss. If the selling price is ₹ 640. Find the cost price.
a) 700 b) 750 c) 800 d) 850

→

$$\text{Selling price} = \text{cost price} \times (1 - \text{loss percentage})$$

$$640 = \text{cost price} \times (1 - 0.20)$$

$$640 = \text{cost price} \times 0.80$$

$$\text{Cost Price} = \frac{640}{0.80} \rightarrow 800$$

∴ Ans: c) 800

- (22) A trader sells a mobile phone for ₹ 9600 at a profit of 20%. Find the cost price.
a) 7500 b) 8000 c) 8200 d) 8500

→

$$\text{Selling price} = \text{cost price} \times (1 + \text{profit percentage})$$

$$9600 = \text{cost price} \times (1 + 0.20)$$

$$9600 = \text{cost price} \times 1.20$$

$$\text{cost price} = 9600$$

$$1.20$$

$$9600 \div 1.20 = 8000$$

∴ Ans: b) 8000

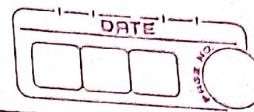
- (23) A shopkeeper sells an item for ₹ 500 at a 20% profit. What was the cost price?

- a) 400 b) 410 c) 420 (416.67) d) 430

→

$$\text{Selling price} = \text{cost price} \times (1 + \text{profit percentage})$$

$$500 = \text{cost price} \times (1 + 0.20)$$



Cost price = 500×1.20

$$\text{Cost price} = 500$$

$$= 600$$

$$= 416.67$$

Ans: c) 420

24) A man buys two articles for £1500 each. He sells one at a 20% profit and the other at a 10% loss. Find his net profit/loss.

- a) 5% loss b) 5% profit c) 10% profit d) No profit
No loss.

$$\text{Selling price} = 1500 \times (1 + 0.20)$$

Calculate the selling price

$$\text{Selling price} = 1500 \times (1 - 0.10)$$

$$= 1500 \times 0.90$$

$$= 1350$$

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

$$\text{Total selling price} = 1800 + 1350 = 3150$$

Calculate the Net profit

$$\text{Net profit} = \text{Total selling price} - \text{Total cost price}$$

$$= 3150 - 3000$$

$$= 150$$

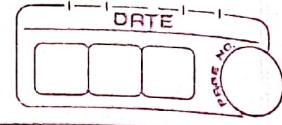
Calculate the Profit percentage

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

$$= 5\%$$

Ans: b) 5% profit





(25) A trader sells an article at ₹ 1250 with a loss of 12%.
Find the cost price.

- a) 1300 b) 1400 c) 1450 d) 1500



→ $\text{S.P.} = \text{C.P.} - \text{L.P.}$

$$\text{Selling price} = \text{cost price} \times (1 - \text{loss percentage})$$

$$1250 = \text{cost price} \times (1 - 0.12)$$

$$1250 = \text{cost price} \times 0.88$$

$$\text{cost price} = \frac{1250}{0.88} = 1420.45$$

$$\therefore \text{Ans: b) } 1420.45$$

(26)

Find the profit percentage earned after selling an article at doubled rate for half quantity.

- a) 200% b) 300% c) 400% d) 450%



Cost price for 0.5 units is ₹ 50/-

$$0.5 \times 100 = 50$$

The profit is ₹ 50/-

$$200\% = 0.21 \quad \text{Profit} = 100 - 50$$

$$200\% + 200\% = 50 \quad [300\% \text{ Loss}]$$

$$\text{Profit percentage} = \left(\frac{\text{Profit}}{\text{Cost Price}} \right) \times 100$$

$$= \left(\frac{50}{50} \right) \times 100$$

∴ Profit percentage is 100%.

$$100\% \times (100) = 10000 \text{ rupees}$$

∴ Ans: a) 100%



(27) A number is multiplied by 20% of itself, if the final value is 490, find the number.
a) 35 b) 40 c) 45 d) 50.

Calculate the 20% of the number.

$$x \times 20\% =$$

$$x \times 0.2x = 0.2x^2$$

The sum of the number and the product is $x + 0.2x^2$

Sum is then doubled:

$$2(x + 0.2x^2) = 490$$

$$2x + 0.4x^2 = 490$$

$$0.4x^2 + 2x - 490 = 0$$

$$4x^2 + 20x - 4900 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a = 4$$

$$b = 20$$

$$c = -4900$$

$$= \frac{-20 \pm \sqrt{20^2 - 4 \cdot 4 \cdot -4900}}{2 \cdot 4}$$

$$= \frac{-20 \pm \sqrt{400 + 78400}}{8}$$

$$x = \frac{-20 \pm \sqrt{78800}}{8}$$

$$= \frac{-20 \pm 280.72}{8}$$

$$\text{Loss} = \frac{1}{8} (20 + 280) = \frac{1}{8} 300 = 37.5$$

$$\text{S.P.} = \frac{1}{8} (20 + 280) = \frac{1}{8} 300 = 37.5$$

$$x = \frac{1}{8} (20 + 280) = \frac{1}{8} 300 = 37.5$$

$$= -300 \times \frac{1}{8}$$

$$= -37.5$$

$\therefore \text{Ans: b) } 37.5$

- (28) An article is sold at 20% less than its cost price. If the selling cost is 50 rupees and the selling cost is 5% of the selling price. Find the loss. (Selling cost here is the expense occurred to sell the article, it is levied on the seller).
- a) 150 rupees b) 200 rupees c) 250 rupees d) 300 rupees.

$$\text{Selling cost} = 5\% \text{ of } 50 = \frac{5}{100} \times 50 = 2.5$$

$$SP = 0.8 \times CP$$

$$0.8 \times x = 50$$

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

Calculate the total loss.

Selling cost + Loss from sale.

Cost price - Selling price

$$\text{Loss for sale} = 62.5 - 50 = 12.5$$

$$\text{Total Loss} = 12.5 + 2.5 = 15$$

$\therefore \text{Ans: d) } 15$



$$S = \frac{50}{CP} \times 100$$

$$CP = \frac{50}{S} \times 100$$

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

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

$$5x = 5000$$

$$x = \frac{5000}{5}$$

$$x = 1000$$

$$CP \rightarrow SP.$$

$$SC = 50$$

$$1000 \xrightarrow{-20\%} 800$$

$$= \frac{1000 - 800}{100}$$

$$= 200 \text{ loss}$$

\therefore Ans. $\boxed{200}$

- (2) If the seller sells half of his goods at 20% loss and the rest of his goods at 50% profit, find the profit percentage on the entire transaction.
 Profit percentage on the entire transaction.
 a) 12% profit b) 15% profit c) 20% profit d) 25% profit.

cost price of each half = 50

$$\text{Selling price} = 180\% \text{ of } 50 = \frac{80}{100} \times 50 = 40$$

second half (50% profit)

$$\text{Selling price} = 150\% \text{ of } 50 = \frac{150}{100} \times 50 = 75$$

Calculate the Total selling price :

$$\text{Total selling price} = 40 + 75 = 115 -$$

$$\begin{aligned}\text{Profit} &= \text{Total selling price} - \text{Total cost price} \\ &= 115 - 100 \\ &= 15\end{aligned}$$

Calculate the profit percentage:

$$\begin{aligned}\text{Profit percentage} &= \left(\frac{\text{Profit}}{\text{Cost Price}} \right) \times 100 \\ &= \left(\frac{15}{100} \right) \times 100 \\ &= 15\%\end{aligned}$$

∴ Ans : b) 15% profit

- (30) The expense of selling an article, worth rupees 6000 is 50 rupees. If the selling expenses is 10% more than the loss, find the loss percentage.

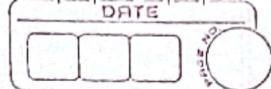
a) 7.5% b) 8.33% c) 9.09% d) 10% (10)

$$\text{Cost Price} = 6000.$$

$$\text{Selling Price} = 50$$

$$50 = L + 0.1L \Rightarrow 50 = 1.1L$$

$$L = \frac{50}{1.1} = 45.45 \text{ (Loss)}$$



$$\text{Loss Percentage} = \left(\frac{\text{Loss}}{\text{Cost Price}} \right) \times 100$$

$$= \left(\frac{45.45}{6600} \right) \times 100$$

$$= 0.007575 \times 100$$

$$= 7.58\%$$

∴ Ans: a) 7.5%.

- (31) The profit on selling 1 article is equal to the cost price of 2 such articles. Find the profit percentage.
 a) 100%. b) 150%. c) 200%. d) 225%.

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

$$\text{Selling Price} = \text{Cost Price} + \text{Profit}$$

$$= x + 2x = 3x$$

Calculate the profit percentage

$$\text{Profit Percentage} = \left(\frac{\text{Profit}}{\text{Cost Price}} \right) \times 100$$

$$= \frac{2x}{x} \times 100 = 200\%$$

∴ Ans: c) 200%.

- (32) The initial price of an article is decreased by 20%, but the selling price remains constant if the initial profit was 500 rupees. Find the new profit. It is known the initial profit percent was 20%.



of cost price.

- a) 800 rupees b) 900 rupees c) 1000 rupees d) 1200 rupees



Initial profit is 250

Profit = 20% of cost price

$$500 = 0.2 \times x$$

$$x = 500$$

$$\frac{1}{0.2}$$

Selling price of laptop = 2500 + profit on laptop = 2500

New selling price = cost price + profit

$$= 2500 + 500$$

$$= 3000$$

New cost price = 80% of 2500

$$x = 0.8 \times 2500$$

$$= 2000$$

New profit = selling price - New cost price

$$= 3000 - 2000$$

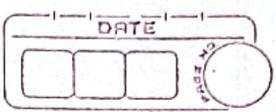
$$= 1000$$

Ans: c) 1000

(33)

The price of a pair of slippers is decreased by 10%.
and the selling price is constant. If the initial profit percentage was equal to 25%, find the new profit percentage.

- a) 35% b) 38.8% c) 40% d) 42%



profit percentage = 25%.

$$\text{profit percentage} = \left(\frac{\text{Profit}}{\text{Cost Price}} \right) \times 100$$

= 25% of x
= 0.25x.

$$\text{Selling Price} = \text{Cost Price} + \text{Profit}$$

= x + 0.25x.
= 1.25x.

$$\text{New CP} = 90\% \text{ of } x$$

$$= 0.9x$$

$$\text{New profit} = \text{SP} - \text{New CP}$$

= 1.25x - 0.9x = 0.35x

calculate New profit percentage.

$$\text{New profit percentage} = \left(\frac{\text{New profit}}{\text{New cost price}} \right) \times 100$$

= \left(\frac{0.35x}{0.9x} \right) \times 100

= \left(\frac{0.35}{0.9} \right) \times 100

∴ Ans. b) 38.88%

- (24) The cost price of an article is doubled. and the selling price is made half. If the initial profit percentage was 50%. find the profit percentage now.
a) 25%. b) 50%. c) 100%. d) 250%.

$$\text{profit percentage} = \left(\frac{\text{Profit}}{\text{Cost Price}} \right) \times 100$$



Initial profit = 50%.

Profit = 5x.

Calculate initial selling price

$$SP = \text{cost price} + \text{profit}$$

$$= 2x + 5x$$

$$= 7x$$

New cost price = 2x

$$\text{New SP} = \frac{6x}{2} = 3x.$$

Calculate new profit

$$\text{New profit} = \text{New SP} - \text{New CP}$$

$$= 3x - 2x = x$$

New profit percentage = $\left(\frac{\text{New profit}}{\text{New cost price}} \right) \times 100$

$$= \frac{x}{2x} \times 100$$

$$= \frac{1}{2} \times 100$$

$$= 50\%$$

∴ Ans: b) 50%

- (35) A shopkeeper increases the price of sugar by 25%.
by how much a family should decrease their
consumption to maintain the regular price?

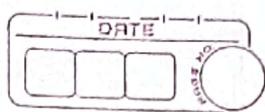
a) 25% increase b) 25% decrease c) 20% increase d) 20% decrease

Original cost of sugar = 100 per kg.

original consumption = 100 kg

Initial expenditure:

$$100 \text{ kg} \times 100 = 10,000$$



calculate new price

$$\text{New price per kg} = 100 + 25\% \text{ of } £100 \\ = 100 + 25 = 125$$

$$\text{New consumption} \times 125 = 10000 \\ \text{New consumption} = \frac{10000}{125} = 80 \text{ kg}$$

$$100 \text{ kg} - 80 \text{ kg} = 20 \text{ kg}$$

$$\left(\frac{20}{100} \right) \times 100 = 20\%$$

∴ Ans : d) 20% decrease.

- (36) The profit on selling 15 articles is equal to the cost price of 2 articles. Find the profit percentage.

a) 11.11% b) 12.22% c) 13.33% d) 14.44%

$$\text{Total CP} = 15x$$

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

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

$$= 15x + 2x \\ = 17x$$

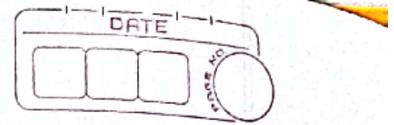
$$\text{Profit percentage} = \left(\frac{\text{Profit}}{\text{Total cost price}} \right) \times 100$$

$$= \left(\frac{2x}{15x} \right) \times 100$$

$$= \left(\frac{2}{15} \right) \times 100 \\ = 13.33\%$$

∴ Ans : c) 13.33%





- (37) 40% of a number a is 50% of a number b, find the value a:b.
 a) 2:3 b) 1:4 c) 1:5 d) 3:5 e) 5:4

→

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

$$0.4a = 0.5b$$

$$4a = 5b$$

Find the ratio a:b.

$$\frac{a}{b} = \frac{5}{4}$$

$$a:b = 5:4 \quad \text{Ans (b:24)}$$

∴ Ans: e) 5:4

- (38) The marked price of an article is 5 times the discount. Find the selling price in terms of discount.
 a) 2.5 times the discount b) 3.5 times the discount
 c) 4 times the discount d) 5 times the discount

→

$$MP = 5d \rightarrow 6d = 92 \text{ Rs per r}$$

SP = marked price - Discount

$$SP = 5d - d$$

$$= 4d$$

∴ Ans: c) 4 times the discount

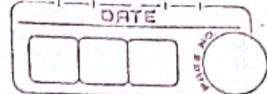
- (39) Solve for x, x = 20% of 12% of 120% of 6250.

- a) 270 b) 225 c) 200 d) 180

→

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





Step 1: Convert Percentage to Fractions.

$$20\% \text{ of } = 20 \times \frac{1}{100} = 0.2$$

$$12\% = 12 \times \frac{1}{100} = 0.12$$

$$120\% = 120 \times \frac{1}{100} = 1.2$$

Find 120% of 6250.

$$1.2 \times 6250 = 7500$$

Find 12% of 7500.

$$0.12 \times 7500 = 900$$

Find 20% of 900.

$$0.2 \times 900 = 180$$

∴ Ans: d) 180

- 40 A shopkeeper purchased an article for 500 rupees. At what price should he mark the article to allow a discount of 35% and still earn 100% profit.

a) 1539 rupees b) 1593 rupees c) 1555 rupees d) 1599 rupees

Cost price = 500

Profit percentage = 100%.

Discount percentage = 35%.

$$SP = CP + 100\% \text{ of } CP$$

$$= 500 + 500 = 1000$$

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

$$1000 = MP \times (1 - 0.35)$$

$$1000 = MP \times 0.65 = \frac{1000}{0.65} = 1538.46$$

∴ Ans: a) 1539



41) A is 25% more than B. By what percent is B smaller than A?

- a) 13.33% b) 20% c) 22% d) 30%

$$A = 100 + 25\% \text{ of } 100 = 125$$

$$B = 100 + 25\%$$

$$= 125 - 100 = 25$$

$$\text{percentage decrease} = \left(\frac{\text{difference}}{\text{original value (A)}} \right) \times 100$$

$$\text{percentage decrease} = \left(\frac{25}{125} \right) \times 100$$

$$\text{percentage decrease} = 25 \times 100$$

$$\text{percentage decrease} = 0.2 \times 100 = 20\%$$

$\therefore \text{Ans: b) } 20\%$

42) If the discount is twice the cost price and the marked price is 10000. Find the selling price. No profit or loss was made.

- a) 1111.11 rupees. b) 3333.33 rupees.
c) 5555.55 rupees d) 7777.77 rupees.

$$\text{Selling price} = \text{cost price}$$

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

$$\text{marked price} = 10000 \Rightarrow 2x$$

$$\text{Selling price} = \text{marked price} - \text{discount}$$

$$10000 - 2x = 10000 - 2x$$

$$(2x - 1) \times 9000 = 0$$

$$34.375 = 0 \Rightarrow x = 10000$$

$$B.P.C = 10000$$

$$x = 10000$$

3

$$= 3333.33$$

\therefore Ans: b) 3333.33 rupees.

- (43) The cost price of an article is 30% less than the selling price. The discount is 40% of the selling price. If the marked price is 12600 rupees. Find the cost price.

- a) 6300 rupees b) 10000 rupees
 c) 8400 rupees d) 5600 rupees.

$$C.P = S.P - 30\% \text{ of } S.P$$

$$C.P = 0.7 \times S.P$$

$$\text{Discount} = 0.4 \times S.P$$

$$S.P = S.P + \text{Discount}$$

$$12600 = S.P + 0.4 \times S.P$$

$$12600 = 1.4 \times S.P$$

$$S.P = 12600$$

$$1.4$$

$$S.P = 9000$$

$$C.P = 0.7 \times 9000$$

$$= 6300$$

\therefore Ans: a) 6300

- (44) If 33.33% of a number is 20 more than 16.66% of the number. Find 120% of the number.

- a) 121 b) 139 c) 144 d) 169



$$\rightarrow 33.33\% \text{ of } x =$$

$$\frac{33.33}{100} \times x = \frac{1}{3} x$$

$$16.66\% \text{ of } x =$$

$$\frac{16.66}{100} \times x = \frac{1}{6} x$$

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

$$6x + 3x = 6x + 6 \times 20$$

$$9x = x + 120$$

$$2x = 120$$

$$x = 120 \div 2 = 60$$

$$20\% \text{ of } 120 = \frac{120}{100} \times 120$$

$$= 24$$

$$+ 24 = 1.2 \times 120 = 144$$

∴ Ans : c) 144

(45) Find the number if 20% of a number is 20 more than

20% of another number 20

- a) 100 b) 110 c) 120 d) 128



$$20\% \text{ of } x = \frac{20}{100} \times x = 0.2x$$

$$20\% \text{ of } 20 = \frac{20}{100} \times 20 = 4$$

$$0.2x = 4 + 20$$



$$0.2x = 24$$

$$x = \underline{24}$$

$$P.28 \times 0.2$$

$$x = 24 \times 5$$

$$= 120$$

∴ Ans: (c) 120

- (46) A number if doubled, then tripled and this process is repeated twice. What is the percentage change?
 a) 3500%. b) 3000%. c) 2500%. d) 1750%.

The number is doubled $\rightarrow 2x$

$$\begin{aligned} &\text{tripled} \rightarrow 3 \times 2x \\ &= 6x \end{aligned}$$

$$\begin{aligned} &6x \text{ is doubled} \rightarrow 2 \times 6x = 12x \\ &\text{tripled} \rightarrow 3 \times 12x = 36x \end{aligned}$$

$$36x \text{ is doubled} \rightarrow 2 \times 36x = 72x$$

$$\text{tripled} \rightarrow 3 \times 72x = 216x$$

$$\text{Percentage change} = \left(\frac{\text{Final value} - \text{Initial value}}{\text{Initial value}} \right) \times 100$$

$$= \left(\frac{216x - x}{x} \right) \times 100$$

$$= \left(\frac{215x}{x} \right) \times 100$$

$$= 215 \times 100 = 21500\%$$

∴ Ans a) 3500%.

(47) By how much should 234 be reduced to make it 6% of itself?

- a) 80.9 b) 81.9 c) 82.9 d) 83.9

$$6\% \text{ of } 234 = \frac{6}{100} \times 234$$

$$= 0.06 \times 234$$

$$= 152.1$$

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

$$= 81.9$$

∴ Ans : b) 81.9

(48) What is 90% of 900% of 9000% of g?

- a) 7290 b) 729 c) 6561 d) 6561

$$90\% = \frac{90}{100} = 0.9$$

$$900\% = \frac{900}{100} = 9$$

$$9000\% = \frac{9000}{100} = 90$$

$$9000\% \times 90 = \frac{9000}{100} \times 90 = 810$$

$$900\% \text{ of } 810 = 90 \times 810$$

$$900\% \text{ of } 810 = 90 \times 810 = 7290$$

$$90\% \text{ of } 7290 = 0.9 \times 7290 = 6561$$

∴ Ans : d) 6561

- (49) Out of 25 employees of a company, 13 are set off and the salaries of rest of the employees is increased by 24%. Find the total increase or decrease in company's expenditure.
- a) 40.48% decreased b) 40.44% increased
 c) 44.48% decreased d) 44.84% increased

\rightarrow Total employees = 25

Salary expenditure = 25×100
 $= 2500$

remaining employees = $25 - 13 = 12$

Salary increased by 24%.

$100 + 24\% \text{ of } 100$

$= 100 + 24$

$= 124$

Salary expenditure for 12 employees,

$12 \times 124 = 1488$

Initial expenditure = 2500

New expenditure = 1488

Change of expenditure = $2500 - 1488$

$= 1012$

$= \frac{1012}{2500} \times 100$

$= 40.48\%$

[Ans: a) 40.48% decreased]

50

Zayn bought tickets to concert for RS 3500. He wants to sell them at a discount of 15%. What is the discount in RS?

- a) RS 1525 b) RS 350 c) RS 2525 d) RS 1050



$$MP = \frac{3500}{100} \times 15 = 525$$

$$\text{Discount} = 15\%$$

$$\text{Discount Amt} = \frac{\text{original price} \times \text{Discount Percentage}}{100}$$

$$= \frac{3500 \times 15}{100}$$

$$= 3500 \times 0.15$$

$$= 525$$

∴ Ans : c) ₹ 525