

Assignment 2

Topic : profit and loss , percentage

1. loss is 20%

Selling price is 450 Rs

$$S.P = \frac{(100 - \text{loss}\%)}{100} \times C.P$$

$$450 = C.P \frac{(100 - 25)}{100}$$

$$45000 = 75 C.P$$

$$C.P = \frac{45000}{75} 600$$

$$C.P = 600$$

Answer c) 600

2. cost price = 1200

sold price = 1440

$$\text{Profit \%} = \frac{S.P - C.P}{C.P} \times 100$$

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

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

$$= 20\%$$

Answer c) 20%

3. $SP = 960$
 $CP = 800$

$$\begin{aligned} \text{Profit \%} &= \frac{SP - CP}{CP} \times 100 \\ &= \frac{160^20}{1800} \times 100 \\ &= 20\% \end{aligned}$$

4. Selling price = 1200
Loss = 20%

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

$$1200 = \frac{100 - 20}{100} \times CP$$

$$1200 = \frac{80}{100} \times CP$$

$$\underline{1200} = CP$$

$$\underline{842}^1$$

$$\therefore CP = 1500$$

b) 1500

5. $CP = 400$
 $SP = 480$

$$\begin{aligned} \text{Profit \%} &= \frac{SP - CP}{CP} \times 100 \\ &= \frac{80^20}{400} \times 100 \\ &= 20\% \end{aligned}$$

Answer b) 20%.

$$\begin{aligned}
 6. \% \text{ change} &= a + b + \frac{ab}{100} \\
 &= 20 + 10 + \frac{20 \times 10}{100} \\
 &= 30 + 2 \\
 &= 28
 \end{aligned}$$

Answer : a) 28 %.

$$\begin{aligned}
 7. SP &= 800 \\
 \text{discount} &= 20\%
 \end{aligned}$$

$$SP = \frac{100 - 10\%}{100} \times CP$$

$$800 = \frac{100 - 20}{100} \times CP$$

$$800 = \frac{80}{100} \times CP$$

$$\frac{8000}{8} = CP$$

$$\therefore CP = 1000$$

Answer : b) 1000

$$8. SP = 1800, \text{ discount} = \frac{\text{Profit}}{100} = 25\%$$

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

$$1800 = \frac{100 + 25}{100} \times 100 CP$$

$$1800 = \frac{125}{100} \times CP$$

$$\frac{1800 \times 100}{125} = CP$$

$$\therefore CP = 1400 \text{ c)}$$

9.

$$CP = 1500, \text{ discount} = 10\%.$$

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

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

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

$$SP = 1350$$

10. $CP = 150$

$$SP = 200$$

$$\text{Profit} = 200 - 150 = 50$$

$$\begin{aligned} \text{Profit}\% &= \frac{50}{150} \times 100\% \\ &= \frac{100 \times 3}{3} \\ &= 33.33\% \end{aligned}$$

Answer c) 33.33%

11. market price = $\frac{\text{profit}\% + \text{Discount}\%}{1 - \text{discount}\%} \times 100$

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

$$= \frac{35}{\frac{100 - 15}{100}} \times 100$$

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

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

$$= 35\% \text{ b)}$$

$$12. SP = 2250, \text{ profit} = 10\%.$$

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

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

$$2250 \times 100 = \frac{110 \times CP}{100}$$

$$\frac{2250 \times 100}{110} = CP$$

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

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

$$CP = 2000 \text{ c)}$$

$$13. \text{ Profit}\% = 25\%.$$

$$\text{Cost price} = 800 \text{ rs.}$$

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

$$SP = \frac{100 + 25}{100} \times CP 800$$

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

$$SP = 1000 \text{ rs. d)}$$

14. $SP = 15000$, loss % is 10% .

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

$$15000 = 100 - \frac{10}{100} \times CP$$

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

$$\underline{15000} = CP$$

$$CP = 16000 \text{ } \square$$

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

assume $CP = 100$

$$= 100 + 50$$
$$= 150$$

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

$$= 150 - 30$$
$$= 120$$

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

$$= \frac{120 - 100}{100} \times 100$$
$$= 20\% \text{ a)$$

$$16. SP = \frac{100 + \text{Profit}\%}{100} \times CP$$

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

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

$$SP = 448$$

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

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

$$44800 = 95mp$$

$$mp = \frac{44800}{95} 471.5$$

$$mp = 471.5 \quad \text{Approx}$$

$$mp = 500 \quad \text{Ans. a)}$$

$$17. CP = 480$$

$$SP = 576$$

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

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

$$= \frac{96}{48} \times 100\%$$

$$= 20\%$$

18. Profit % = 50 rs
CP = 500 rs

$$\begin{aligned}\text{Profit \%} &= \frac{SP - CP}{CP} \times 100 \\ &= \frac{50}{500} \times 100 \\ &= 10\% \text{ C}\end{aligned}$$

19. Profit % = 15 %
SP = 2300 rs

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

$$2300 = \frac{100 + 15}{100} \times CP$$

$$2300 \times 100 = 115 \times CP$$

$$CP = \frac{23000}{115} = 2000$$

$$CP = 2000$$

20. CP = 750 rs.

$$SP = 900 rs.$$

$$\begin{aligned}\text{Gain percentage} &= \frac{SP - CP}{CP} \times 100 \\ &= \frac{900 - 750}{750} \times 100 \\ &= \frac{150}{750} \times 100\end{aligned}$$

$$\begin{aligned}
 &= \frac{1500}{75} \times 10 \\
 &= \frac{1500}{75} \cdot 20 \\
 &= 20\% \text{ C)
 \end{aligned}$$

21. $SP = 640 \quad LOSS \% = 20\%$

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

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

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

$$64000 = 80 CP$$

$$CP = \frac{64000}{800}$$

$$CP = 800 \text{ C)}$$

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

$$profit = 20\%$$

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

$$9600 = CP \frac{(120)}{100}$$

$$CP = \frac{96000}{120}$$

$$CP = 8000 \text{ RS b)}$$

23. $SP = 500$
 $\text{profit} = 20\%$

$$SP = \frac{100 + \text{profit}\%}{100} \times CP$$

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

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

$$CP = \frac{500 \times 10}{12}$$

$$CP = 420$$

24. $CP = 1500$
 $\text{profit} = 20\% \text{ of } 1500$
 $= 0.20 \times 1500$
 $= 300$

$$SP = 1500 + 300$$

 $= 1800$

$$CP = 1500$$

 $\text{loss}\% = 10\% \text{ of } 1500$
 $= 0.10 \times 1500$
 $= 150$

$$SP = 1500 - 150 = 1350 \text{ rs.}$$

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

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

$$\begin{aligned} \text{Net profit} &= 3150 - 3000 \\ &= 150 \\ \text{Profit} &= 5\% \text{ b}) \end{aligned}$$

25. $SP = 1250$
 $\text{Loss} = 12\%$

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

$$1250 = \frac{100 - 12}{100} \times CP$$

$$125000 = 88 \times CP$$

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

$$CP = 1420.45$$

Approx.
 $CP = 1400 \text{ b})$

26. Assume cost price = 1rs.

Total quantity = 2 units

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

$$= 2 \text{rs}$$

Selling price half for the quantity
 $= 2 \times 1 = 2$

SP for the remaining half 1 unit
 $= 1 \text{rs}$

Total selling price = $2 + 1 = 3$

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

$$= 3 - 2 = 1 \text{ rs}$$

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

$$= 50\%$$

Q7. $x \times \frac{20}{100}$

Sum of the number and the result.

$$= x + 0.2x$$

$$= 1.2x$$

Q8. Cost price = x
Selling cost = 50

100% of the selling price = $\frac{50}{5 \times 100} \times 100$

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

$$= 1000$$

\therefore Cost price = 80%.

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

$$= \frac{10000}{80}$$

= Cost price - loss

= 1250 - 100 = 1250

Final loss = 250 + 50 = 300.

29. Let total cost = 100rs
 Loss = 20% of 50 = 10rs
 $SP = 50 - 10 = 40rs$

$$\text{Profit} = 50\% \text{ of } 50 = 25rs$$

$$SP = 50 + 25 = 75rs$$

$$\therefore SP = 40 + 75 = 115$$

$$CP = 100$$

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

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

Answer: b) 15%.

30. $CP = 6000$, Expenses = 50.

Let the loss be x , then.

$$\text{Selling expense} = x + 10\% \text{ of } 20 = 1.1x$$

$$1.1x = 50$$

$$x = \frac{50}{1.1} = 45.45$$

$$\therefore \text{Loss \%} = \frac{45.45}{6000} \times 100 = 0.7575\%$$

31. $CP = x$

Profit = $2x$, Selling price = $CP + P$

$$\therefore SP = x + 2x = 3x$$

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

Answer: c) 200%.

32. $CP = x$
 $\text{Profit} = 500$
Initial profit % = 20%.
 $20 = \frac{500}{x} \times 100$
 $x = \frac{500 \times 100}{20} = 2500$
 $SP = CP + \text{Profit} = 2500 + 500 = 3000$
New CP after a 20% decrease.

$$\begin{aligned} CP &= 2500 - \frac{20}{100} \times 2500 \\ &= 2500 - 500 \\ &= 2000 \end{aligned}$$

New profit
 $SP - \text{New CP} = 3000 - 2000 = 1000$
Answer: 1000rs.

33. Initial SP = $x + 25\% \text{ of } x$
 $= x + 0.25x$
 $= 1.25x$

New CP
 $x - 10\% \text{ of } x$
 $= x - 0.1x$
 $= 0.9x$

New profit %
 $SP - \text{New CP} = 1.25x - 0.9x = 0.35x$

Profit % = $0.35x / 0.9x \times 100 = 35 / 90 \times 100$
Answer = 38.8 % b)

34. $C.P = x$

Profit % = 50%.

Initial profit = 50% of $x = 5x$.

$$SP = CP + \text{Profit} = x + 5x = 6x$$

New $CP = 2x$

$$SP = \frac{6x}{2} = 3x$$

New profit = $SP - CP = 3x - 2x = x$

Profit % = $\frac{x}{2x} \times 100 = 50\%$.

Answer B) 50%.

35. Total cost = ny

New price = $x + 25\%$ of $x = 1.25x$

Total cost = $1.25x \times y = ny$

$$y = \frac{ny}{1.25x} = \frac{y}{1.25} = 0.8y$$

Thus the decrease in consumption:

$$y - y' = y - 0.8y = 0.2y \Rightarrow 20\% \text{ decrease}$$

d) 20% decrease

36. $CP = n$ of 1 article
 CP of 15 articles

$$CP = 15n$$

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

$$SP = CP + P = 15n + 2n = 17n$$

$$\frac{\text{Profit}}{CP} \times 100 = \frac{2n}{15n} \times 100 = \frac{200}{15} = 13.33\%$$

Answer: c) 13.33%.

37. 40% of a = 50% of b

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

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

$$2x 2a = 5xb$$

$$4a = 5b$$

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

$$a:b = 5:4$$

38. $S.P = M.P - \text{Discount}$

$$S.P = 5d - d = 4d$$

Answer c) 4 times the discount.

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

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

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

$$x = \frac{28800000}{10000000}$$

$$\therefore x = 288$$

$$x = 180 //$$

Answer: d) 180

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

$$1000 = mp \times (1 - 0.35) = mp \times 0.65$$

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

$$mp = \approx 1539$$

a) 1539 rs.

41. Percentage decrease = $\left(\frac{A-B}{A} \right) \times 100$

$$= \left(\frac{1.25B - B}{1.25B} \right) \times 100$$

$$= \frac{0.25B}{1.25B} \times 100$$

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

Answer: b) 20%.

42. Discount = $2 \times CP$

MP = 10,000

Discount = $2CP$

SP = MP - discount

CP = 10,000 - 2CP

CP + 2CP = 10,000

3CP = 10,000

$CP = \frac{10,000}{3} = 3333.33$ b)

43. CP = SP - 30% of SP

= SP - 0.3SP

= 0.7SP

SP = MP - discount = 12600 - 0.4SP

SP + 0.4SP = 12600

1.4SP = 12600

$SP = \frac{12600}{1.4} = 9000$

CP = 0.7 × 9000 = 6300

Answer a) 6300.

44. 33.33% of n = 16.66% of n+20

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

$\frac{1}{3}n = n + 120$

$n = 120$

$\therefore 1.2 \times 120 = 144$

Answer c) 144.

45. 20% of x = 20% of 20 + 20

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

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

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

$$x = 24 \times 5 = 120$$

Answer: c) 120

46. percentage change = $\frac{216n - n}{n} \times 100$
 $= \frac{215n}{n} \times 100$
 $= 21500\%$.

Answer c) 2500%

47. $n = \frac{65}{100} \times 234 = 152.1$

$$234 - 152.1 = 81.9$$

Answer b) 81.9

48. $n = \frac{90}{100} \times \frac{900}{100} \times \frac{9000}{100} \times 9$

$$n = 0.9 \times 9 \times 90 \times 90 \times 9$$

$$\therefore n = 6561$$

Answer: d) 6561

49
50

$$\text{New Salary} = 125 + 24\% \text{ of } 125 \\ = 125 + 2.885 \\ = 14.885$$

$$\% \text{ change} = \frac{14.885 - 255}{255} \times 100 \\ = - \frac{10.125}{255} \times 100 \\ = -40.48\%$$

Answer: a) 40.48% decreased

50. Ticket price = 3500
discount = 15%

$$\text{discount amount} = \frac{15}{100} \times 3500 \\ = 525$$

Answer: c) 525.