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Profit & Loss, Percentage Assignment 2

1] Article is sold at loss 25% & selling price is 450, find cost price.

→ $$\text{cost price} = \frac{\text{S.P} \times 100}{100 - \text{L}\%}$$

$$= \frac{450 \times 100}{100 - 25}$$

$$= \frac{450 \times 100}{75_1}$$

CP = 600 option c//

2] Bought an item ₹ 1200 & sold it for 1440. What is profit percentage?

→ Profit = 1440 - 1200 = 240.

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

P% = 20% option c//

3] SP of item is ₹ 960 & CP is ₹ 800. What is profit percentage?

→ Profit = 960 - 800

= 160

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

= 20% option b//

4] Shopkeeper sells a fan ₹ 1200 with loss of 20%. Find cost price.

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

$= \frac{1200 \times 100}{100 - 20} = \frac{\overset{15}{\cancel{1200}} \times 100}{\cancel{80}}$

CP = 1500 ₹ option b //

5] If cost price ₹ 400 & sold for ₹ 480. P% = ?

→ P = 480 − 400 = 80.

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

P% = 20% option b //

6] Trader gives two successive discounts of 20% & 10%. Find net discount percentage

→ MP = 100

↓ − 20%

80

↓ − 10%

72.

Discount % = $\frac{100 - 72}{100} \times 100$

$\frac{28}{100} \times 100$

= 28%

option a //

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

→ $MP = \frac{800 \times 100}{100 - 20} = \frac{\overset{10}{\cancel{800}} \times 100}{\cancel{80}}$

= 1000 option b //

8] Watch sold for ₹1800 with a 25% profit. CP = ?

→ $CP = \frac{SP \times 100}{100 + P\%} = \frac{1800 \times 100}{100 + 25}$

$= \frac{1800 \times 100}{125} = 1440$ ₹

option c //

9] Shopkeeper marks article ₹ 1500 & allows a 10% discount. SP = ?

→ SP = MP − (Discount % × MP).

= 1500 − (10% × 1500)

= 1500 − 150

= 1350 ₹ option b //

10] Merchant buys 10 pens for ₹150 & sells them for ₹ 200. Profit % = ?

→ CP per pen = 150/10 = 15 ₹

SP per pen = 200/10 = 20 ₹

Profit = SP − CP = 20 − 15 = 5.

$P\% = \frac{5}{15} \times 100 = 33.33\%$

option c //.

11] trader gives 15% discount on an item & still makes a profit of 20%. Markup % = ?

→ $SP = CP\left(1 + \frac{P\%}{100}\right)$

$SP = MP\left(1 - \frac{D\%}{100}\right)$

$CP\left(1 + \frac{P\%}{100}\right) = MP\left(1 - \frac{D\%}{100}\right)$

$CP \times 1.2 = MP = 0.85$

$MP = \frac{CP \times 1.2}{0.85} \approx CP \times 1.41$

$$M\% = \left(\frac{MP - CP}{CP}\right) \times 100 = \left(\frac{1.41CP - CP}{CP}\right) \times 100$$

$$= 41\%.$$

option. c ≈ 40%

12] Table sold for ₹ 2250 at 10% profit. CP = ?

$$\Rightarrow \quad CP = \frac{SP \times 100}{100 + P\%.}$$

$$= \frac{2250 \times 100}{100 + 10} = \frac{225\cancel{0} \times 100}{11\cancel{0}}$$

$$= 2045.$$

option c ≈ 2000

13] Shopkeeper wants a profit 25% on item that cost ₹800, SP = ?.

$$\Rightarrow \quad SP = \frac{CP \times (P\% + 100)}{100}$$

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

$$= \frac{8\cancel{00} \times 125}{1\cancel{00}} = ₹1000$$

option b

14] A refrigerator is sold for ₹ 15,000 at a loss of 10%. Find CP = ?

$$\Rightarrow \quad CP = \frac{SP \times 100}{100 - L\%.}$$

$$= \frac{15000 \times 100}{100 - 10} = \frac{\overset{500}{\cancel{1500}\cancel{0} \times 100}}{\underset{3}{\cancel{9}\cancel{0}}}$$

$$= 16,666 \approx 16500$$

option a

15] Article marked 50% above CP & sold at discount of 20%. P% = ?

⇒ CP = C

MP = 1.5C [50% above CP]

SP = 0.8 × 1.5C = 1.2C

P = 1.2C − C = 0.2C.

$$P\% = \frac{0.2C}{C} \times 100 = 20\%$$

option a //

16] Dealer makes a profit of 12% after allowing 5% discount. Find marked price of article whose CP = ₹400.

⇒ CP = 400.

SP = 400 + 0.12 × 400 = 448

448 = 0.95 × MP

$$MP = \frac{448}{0.95} = 471.58 //$$

option a // ≈ 500.

17] Book is bought ₹480 & sold for ₹576. P% = ?

⇒ P = SP − CP = 576 − 480 = 96.

$$P\% = \frac{96^{2}}{\cancel{480}_{1}} \times 10\cancel{0} = 20\%$$

option c //

18] Profit of ₹50 is made on article CP = ₹500

P% = ?

⇒

$$P\% = \frac{\cancel{50}^{10}}{\cancel{500}_{1}} \times 10\cancel{0}$$

= 10% option c //

19] Shopkeeper sells a cycle at 15%. profit & SP = 2300
Find CP = ?

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

$$= \frac{100 \times \overset{20}{\cancel{2300}}}{\cancel{115}_{1}}$$

$$= 2000$$ option b //

20] CP of article = ₹ 750 sold at ₹ 900. Gain % = ?

→ Gain = SP − CP = 900 − 750 = 150

$$g\% = \frac{\overset{31}{\cancel{150}}}{\cancel{750}_{\cancel{15}_{1}}} \times \overset{20}{\cancel{100}}$$

$$= 20\%$$

option c //

21] Man sells an item at 20% loss. SP = 640. CP = ?

→ $$CP = \frac{100 \times 640}{100 - 20}$$

$$= \frac{100 \times \overset{8}{\cancel{640}}}{\cancel{80}_{1}} = ₹800$$

option c //

22] Trader sells mobile phone ₹ 9600 at profit 20%. CP = ?

→ $$CP = \frac{100 \times 9600}{100 + 20}$$

$$= \frac{100 \times \overset{80}{\cancel{9600}}}{\cancel{120}_{1}} = 8000$$

option b //

23] Shopkeeper sells an item ₹ 500 at 20% profit
CP = ?

$\Rightarrow CP = \frac{500 \times 100}{100 + 20} = \frac{500 \times 100}{120}$

$= 416.6.$

option c ≈ 420.

24] Man buys two article for 1500 each. He sells one at 20% profit & other at 10% loss
Find net profit / Loss.

$\Rightarrow CP = 1500.$

SP for 20% P.

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

$= \frac{1500 \times (100+20)}{100}$

$= \frac{150\cancel{0} \times 120}{10\cancel{0}}$

$= 1800$

SP for 10% L

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

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

$= \frac{150\cancel{0} \times 9\cancel{0}}{10\cancel{0}}$

$= 1350.$

$T\,SP = 1800 + 1350 = 3150.$

$P = 3150 - 3000 = 150.$

$P\% = \frac{₹50}{3000} \times 100 = 5\%.$

option b // 5% profit.

25] trader sells an article ₹ 1250 Loss 12%. CP = ?

$\Rightarrow CP = \frac{1250 \times 100}{100 - 12} = \frac{1250 \times 100}{88}$

$CP = 1420.4.$

option b ≈ 1400.

26] Find profit % earned after selling article at doubled rate for half quantity.

⇒ For half quantity

$CP = \frac{100}{2} = 50.$ $\quad SP = 2 * CP = 100.$

$P = 100 - 50 = 50.$

$P\% = \frac{50}{50} * 100 = 100\%$

Full quantity = 200%.

27] A number is multiplied by 20% of itself, sum is then doubled. If final value is 490. find the no.

⇒ X be no. $\quad 20\%$ of $x = x * \frac{20}{100} = x * 5$

$X * x/5 = x^2/5$

Sum is doubled $\quad x^2 * 2/5 = 490$

$2x^2 = 490 * 5 = 2450$

$x^2 = 2450/2 = 1225$

$x^2 = 1225$

$x = 35.$

28] Article sold. 20% less CP. SP = Son of SC is 5% of SP. Find loss

⇒ $SP = ₹50 = 5\%$ of SP

$SP = \frac{50}{0.05} = 100$

$CP\ (20\%\ Loss) = \frac{1000}{0.080} = 1250$

Total Loss = CP − SP + selling cost

= 1250 − 1000 + 50

= ₹300

29] Seller sells half goods 20% Loss & rest half at 50% profit. Find P% = ?

→ Assume CP = 100.

SP1 (20% ~~profit~~ Loss) = 50 × 0.80 = 40.

SP2 (50% profit) = 50 × 1.50 = 75

Total SP = 40 + 75 = 115

$P\% = \frac{115 - 100}{100} \times 100$

= 15%.

option b //

30] Selling article ₹ 6000 worth is 50₹. If selling expenses is 10% more than loss. loss % = ?

→ SE = L + 0.1L = 1.1L

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

$L\% = \frac{45.45}{6000} \times 100 = 0.76\%$

option a // $\approx 7.5\%$

31] Profit on selling 1 article = cost Price of 2.

P% = ?

→ Let CP = 100. $\quad P = 2 \times 100 = 200.$ on 1 artice

SP = CP + P = 100 + 200 = 300

$P\% = \frac{200}{100} \times 100 = 200\%.$ option c //

32] → CP = x

Initial Profit = 20% of CP = 500.

$0.20x = 500$

$x = 2500$

Initial SP = CP + Profit = 2500 + 500 = 3000₹

New CP = decrease by 20%

= 2500 × 0.80 = 2000

New profit = 3000 − 2000 = 1000₹

option c //

33] Price of pair decreased by 10%, SP = constant if initial profit % was equal to 25%. New profit %.

⇒ CP = 100 initial SP (25% P) = 125

New CP (↓ 10%) = 100 × 0.90
= 90

New P% = $\frac{125 - 90}{90} \times 100$

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

option b //

34] CP is doubled & SP is halt. Initial p % = 500%. Find P% = ?

⇒ CP = 100 initial SP ~~(500%)~~ = 600

New CP = 100 × 2 = 200

New SP = 600 ÷ 2 = 300

P % = $\frac{300 - 200}{200} \times 100$ = $\frac{\overset{50}{\cancel{100}}}{\cancel{200}_{1}} \times 100$

= 50% option b //

35] Shopkeeper increased price by 25%, By how much family should ↓ consumption to maintain regular price?

⇒ Initia P = 100 , new price = 125

same amount, comumption ↓ = $\frac{125 - 100}{125} \times 100$

= 20% ↓.

option d //

36] P on selling 15 articles is = cost price of 2 articles. P % = ?

⇒ Let CP of 1 = 100 C. price = 15 = 1500

Profit = CP of 2 article = 200

P = $\frac{200}{1500} \times 100$

= 13.33%

37] 40% of no. a is 50% of no. b, find a:b

→ $0.4a = 0.5b$

$4a = 5b$

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

38] MP of an article is 5 times the discount. SP in term of discount = ?

→ Let discount = ₹ x then MP = $5x$

SP = MP − Discount

$= 5x - x$

$= 4x$

$x = 4$ 4 time discount

option c //

39] Solve x; x = 20% of 12% of 120% of 6250.

→ $x = 0.20 \times 0.12 \times 1.20 \times 6250$

$= 0.20 \times 0.12 \times 7500$

$= 0.20 \times 900$

$= 180$ option d //

40] Shopkeeper purchased an article for 500 ₹, At what price should he mark the article to allow a discount of 35% & still earn 100% profit.

→ CP = 500

Desired profit = 100% of SP = 1000.

MP (35% discount)

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

$= 1538.46$ ₹ option a //.

41] A is 25% more than b. By what % is b smaller than a?

→ Let B = ₹100 then A = 125

B smaller than A $= \frac{125-100}{125} \times 100$

$= 20\%$ option b //

42] Discount is twice CP & MP = 10000 SP = ?
No profit no loss

→ SP = CP.

CP = x then Discount = x

MP = SP + Discount

= 10000 + x + 2x

x = 3333.33

SP = CP = 3333.33 option b //

43) CP of article is 30 % ↓ tha SP. Discount 40 % of SP. If MP is 12600₹ CP = ?

→ CP = 70 % of SP

Discount = 40 % of SP

MP = SP + Discount

= 12600 = SP + 0.40SP

= 9000

CP = 70 % of SP

= ₹ 6300 option a //

44] If 33.33 % of no. is 20 more than 16.66 % of no. Find 120 % of no.

→ Let no be x

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

$\frac{1}{3}x - \frac{1}{6}x = 20.$ $\frac{1}{6}x = 20$

$x = 120.$

120 % of x = 1.20 × 120 = 144 option c //

45] No. = ? if 20 % of no. is 20 more than 20 % of another no. 20.

→ Let x

0.20x = 20 + 0.20 × 20

0.20x = 20 + 4

0.20x = 24

x = 120 option c //

46] No. if doubled, then tripled & this process repeated twice. what is percentage change = ?

→ Let x

After doubling & tripling twice.

$$x \times 2 \times 3 \times 2 \times 3$$

$$= 36x$$

$$\% \text{ change} = \frac{36x - x}{x} \times 100$$

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

$$= 3500\%. \quad \text{option a //}$$

47] By how much should 234 be reduced to make it 65% of itself.?

→ 65% of 234: 0.65×234

$$= 152.1$$

Reduction needed = $234 - 152.1$

$$= 81.9. \quad \text{option b //}$$

48] what is 90% of 900% of 9000% of 9?

→ $0.90 \times 9 \times 90 \times 9$

$$= 0.90 \times 9 \times 810$$

$$= 0.90 \times 7290$$

$$= 6561 \quad \text{option c //}$$

49] Let salary per emp = 100

total expenditure = 2500.

After layoff = 12 emp new salary = 124

New expenditure = 12×724

$$= 1488$$

Decrease % = $\frac{2500 - 1488}{2500} \times 100$

$$= 40.48\% \quad \text{option a //}$$

50) → CP = 3500

Discount = 15%.

$$= 0.15 \times 35000$$

$$= 525 ₹ \quad \text{option c //}$$