MBA Fastrack 2025 (CAT + OMETs)

QUANTITATIVE APTITUDE

DPP: 4

Profit & Loss

Q1 A designer makes a custom dress and sells it to a boutique at a 5% profit. The boutique then sells the dress to a fashion retailer at a 10% profit. Finally, the fashion retailer sells the dress to a customer at a 20% loss. If the customer pays Rs. 2772 for the dress, what was the original cost of making the dress (in Rs.)?

(A) 2150 (B) 2920
(C) 3000 (D) 3150

Q2 A farmer sold a cauliflower at a loss of 15%. If he sold it for Rs. 53 more, he could have gain 11.5% on it. How much (in Rs.) is spent to plant a cauliflower?

(A) 200 (B) 150
(C) 153 (D) 167

Q3 Ravi sold a land to Suresh at a 10% profit. Suresh then sold it to Tushar at a 20% profit. Sanjay sold an identical land to Vikas at a 10% loss, and Vikas later sold it to Mohan at a 30% loss. The total amount that Tushar and Mohan paid for their respective pieces of land is ₹ 21,850 more than what Ravi initially paid. If Ravi and Sanjay bought their land for the same price, find the sum of the prices paid by Ravi and Sanjay for their respective pieces of land (in ₹).

(A) 45,000 (B) 46,000
(C) 49,000 (D) 50,000

Q4 Akshaya gains the selling price of 5 sq. ft of plot by selling 15 sq. ft of plot. What is the percent of gain?

(A) 50% (B) 45%
(C) 40% (D) 35%

Q5 The cost price of an article is Rs. 120. It is sold at a certain price. If it is sold at $\frac{1}{3}$rd of original selling price, there is a loss of $16\frac{2}{3}\%$. What is the original selling price of article?

(A) Rs. 300 (B) Rs. 360
(C) Rs. 270 (D) Rs. 320

Q6 At a certain shopping mall, the cost of each jacket is 3 times the cost of each shirt. Kartik bought 18 jackets and a certain number of shirts. If he bought as many jackets as the number of shirts that he bought and vice versa, his total expenditure on the two items would have been $\frac{2}{17}$ times less. How many shirts did he buy? [Approximate to the nearest integer]

(A) 14 (B) 16
(C) 18 (D) 19

Q7 Raju bought a headphone from Baburaj at a certain price. Raju sold the headphone to Shyam at a profit of $33\frac{1}{3}\%$. Had he bought the headphone from Baburaj at Rs.1500 more and sold it to Shyam at Rs.1600 more, the profit would have been 25%. Find the price at which Raju bought the headphone from Baburaj.

(A) Rs. 3300 (B) Rs. 6000
(C) Rs. 4500 (D) Rs. 6300

Q8 Tyrion is a rice trader who makes a profit of 20% by selling rice. On a certain day, he adds 2 kg of freely available crushed stones to p-kg of rice and sells it at the usual price. If the profit he makes on selling this rice is 25%, then what is the value of p?

(A) 48 (B) 42

(C) 45 (D) 40

Q9 A sunglass company bears an expense of Rs. 240 for producing every sunglass. Also, they have to pay an additional cost of Rs. 25,000, which does not depend on the number of sunglasses produced. If they are able to sell a sunglass during the summer season, they sell it for Rs. 340. If they fail to do so, they have to sell each sunglass for Rs. 200. If they are able to sell only 1,400 out of 1,700 sunglasses, they have made in the summer season, then they have made a profit of:

(A) ₹ 103000 (B) ₹ 90000
(C) ₹ 77000 (D) ₹ 64000

Q10 A shopkeeper bought 60 kg of apples at the rate of Rs 30 per kg. After 2 days, he found that the weight of apples reduced by 15%. He immediately sold half of the apples at the rate of Rs 45 per kg. The next day he found the weight of the remaining apples reduced by 8% again. Now he sold all remaining apples at the rate of Rs 50 per kg. Find his profit or loss percentage.

(A) 29% profit (B) 29% loss
(C) 28% profit (D) 28% loss

Q11 Virat bought two apartments, apartment A and apartment B, at Marina Beach in Chennai. The price of apartment A decreases by 25% every year concerning the previous year. The price of apartment B increases 25% every year concerning the previous year. If the price of both the apartments were equal at the end of 2041 and the price of both the apartments together at the end of 2042 will be 42 crores. What will be the price of apartment 'A' at the end of 2040?

(A) 24 crores (B) 28 crores
(C) 25 crores (D) 22 crores

Q12 Virat buys some affordable LED bulbs from China for ₹ 7 apiece. He hires a fixed-wage engineer to brand and customize the LED bulbs. Then he sells 100 LED bulbs at ₹ 11 each. He gets a net profit of ₹ 200 if the remaining LED bulbs are sold at ₹10 each, and a net loss of ₹ 200 if the remaining LED bulbs are sold at ₹8 each. The engineer's pay (in ₹) is:

(A) 500 (B) 600
(C) 700 (D) 800

Q13 A shop owner sells loose mustard oil from oil containers of fixed volumes. From a new oil container, he sold $\frac{3}{5}^{th}$ of the oil at 45% profit, $\frac{1}{3}^{rd}$ of the oil at 18% profit, and the remaining part of the oil at 15% profit. If in the entire transaction he gained Rs. 272, then what is the cost price (in Rs.) of the container filled with oil?

(A) 1000 (B) 900
(C) 800 (D) 700

Q14 Rohit buys two kinds of loose chocolates, the first of which costs twice as much as the second. He combines the two varieties of chocolates and makes a 25% profit by selling for Rs. 28 per kg. If the ratio of the first to the second type of chocolates in the mixture is 2:3, then the price of the more expensive variety is:

(A) Rs. 8 /kg (B) Rs. 16 /kg
(C) Rs. 32 /kg (D) Rs. 64 /kg

Q15 A farmer sold a cauliflower at a loss of 15%. If he sold it for Rs. 10 more, he could have gain 11.5% on it. How much (in Rs.) is spent to plant a cauliflower? [Round off to nearest integer]

(A) 40 (B) 38
(C) 36 (D) 34

Q16 After providing a discount of 27% on the marked price of a textbook, it is sold for Rs. 876. If the seller sold it at the marked price, he could gain 60% profit. Then the cost price of the textbook is:

(A) 700 (B) 750
(C) 800 (D) 850

Q17 A famous artist earned 16.5% profit by selling his painting on a certain art gallery. If the marked price and the cost price of his painting are in the ratio 8:5, then the discount percentage is:

(A) 21.5% (B) 24.5%
(C) 27.2% (D) 30.2%

Q18 A watch manufacturing company marked the price of the watches 40% more than that of the production cost. They then sell $\frac{1}{5}$ of their stock in offline market at a discount of 15%, and half of the stock in online market at the marked price, and the rest at a discount of 20% in their website. Find their gain percentage.

(A) 25.5 (B) 27
(C) 27.4 (D) 28.6

Q19 A shopkeeper labelled the price of his goods at 140% higher than the cost price. He then offered a discount of 25% on the marked price. A customer bargained and was given an additional discount of 20%. What is the gain of the shopkeeper?

(A) 30% (B) 70%
(C) 44% (D) 63%

Q20 Successive discounts of 20%, 5% and 25% are provided on an article. What is the overall discount percentage provided?

(A) 39% (B) 41%
(C) 43% (D) 47%

Q21 A shopkeeper made a 25% profit when selling a quilt. If the quilt had been acquired for 10% less and sold for an additional Rs 24, the shopkeeper would have gained a 50% profit. The shopkeeper now purchases the quilt at its original cost, marks up the price by 40%, and provides a 10% discount to customers. What is the final selling price of the quilt (in Rs.)?

(A) 298.8 (B) 300.2
(C) 301.6 (D) 302.4

Q22 A seller marks up the price of the article by n and then offers a discount of n, he ends up making a loss of Rs. 100. Had he marked up the price of article 3n and provided a discount of 2n, he would have made a loss of Rs. 300. How much profit will he earn if he marks up articles by 2n and provides a discount of n?

(A) Rs. 100 (B) Rs. 200
(C) Rs. 300 (D) Rs. 400

Q23 Raj always sells toys at a 20% discount on the Maximum Retail Price (MRP) printed on the box. A month before Christmas, he starts giving one box free for every 6 boxes purchased. These 7 boxes are packed in a carton and sold. A week before Christmas, he still has a lot of stock left and, in an effort to sell it all, he announces an additional offer that for every 4 cartons purchased, 1 carton will be given free. If the cost price of 1 box of toys is 50% of the MRP, what is Raj's profit percentage on a transaction where the customer receives 15 cartons?

(A) 9.71% (B) 10.23%
(C) 10.51% (D) 11.09%

Q24 A merchant bought 3 items (X, Y, and Z) and marked up their prices by 40%, 30%, and 25% respectively. She then applied discounts of 35%, 16%, and 10% respectively and sold the items. The selling price ratio of X, Y, and Z, in that order, was 2 : 5 : 10. If the cost price of X was Rs. 60 less than that of Y, what was the selling price of Z in rupees?

Q25 Aisha purchased a certain number of silver necklaces at the rate of Rs 500 each and a certain number of gold necklaces at the rate of Rs 2025 each. For all the necklaces combined, she then set a fixed marked price which was 28% higher than the total cost of all the necklaces. She sold all the necklaces at a discount of 6.25% and made a total profit of Rs 45000. If she bought both types of necklaces,

then the maximum possible total number of silver necklaces that she could have bought is:

Q26 Ravi buys the same number of items at a certain cost each month, marks up the price by 75%, and then gives a discount of 40%, selling all the items in the same month. In a particular month, 25% of the items he purchased were damaged and could not be sold. If he wants to achieve the same amount of profit as before, what should the new discount percentage be?

(A) 10% (B) 15%
(C) 20% (D) 25%

Q27 Ram Babu wishes to run a discount scheme at his shop, which is as follows: "Buy 3 shirts, get X shirts free!" If he wants the discount percentage to not exceed 50, then the number of integral values that X can have is

Q28 The price of a product is marked up by 60%. The discount percentage applied to this marked price during a sale is half of the profit percentage. If the product is sold for Rs. 4500, what is the marked price of the product in rupees?

(A) Rs 3375 (B) Rs 3600
(C) Rs 5400 (D) Rs 6000

Q29 The ratio of the markups on a shirt and a pant was 4:3. The marked prices of the shirt and the pant are in the ratio of 6:5. The profit percentages for the shirt and the pant were 50% and 20% respectively. Given that the ratio of the profits earned on the shirt and the pant was 2:1, what is the ratio of the discounts given on the pant to the shirt?

(A) 7:5 (B) 5:7
(C) 9:8 (D) 7:9

Q30 A spice seller mixes 4 different kinds of spices weighing 4 kg, 6 kg, 8 kg, and 12 kg. She sets a price for the mixture to gain a profit of ₹360. She sells half of the mixture at this marked price and the other half at a 15% discount, resulting in a total profit of ₹285. What was the total cost (in ₹) the seller incurred to buy these 4 types of spices?

(A) 540 (B) 600
(C) 630 (D) 640

Answer Key

Q1	C
Q2	A
Q3	B
Q4	A
Q5	A
Q6	A
Q7	A
Q8	A
Q9	A
Q10	A
Q11	B
Q12	D
Q13	C
Q14	C
Q15	B
Q16	B
Q17	C
Q18	C
Q19	C
Q20	C
Q21	D
Q22	A
Q23	A
Q24	252
Q25	369
Q26	C
Q27	4
Q28	C
Q29	D
Q30	D

Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Text Solution:

Let the original cost of making the dress = Rs. x

Then, the selling price of the same dress by the designer = Rs. $x \times 105\%$

The selling price of the same dress by the boutique = Rs. $x \times 105\% \times 110\%$

The selling price of the same dress by the fashion retailer = Rs.

$x \times 105\% \times 110\% \times 80\%$

Given that, the customer pays Rs. 2772 for the dress to the fashion retailer.

Therefore, we have

$x \times 105\% \times 110\% \times 80\% = 2772$

$x = \frac{2772}{\frac{105}{100} \times \frac{110}{100} \times \frac{80}{100}}$

$x = \frac{2772 \times 100 \times 100 \times 100}{105 \times 110 \times 80}$

$x = 3000$

Hence, the original cost of making the dress = Rs. 3000

Video Solution:

Q2 Text Solution:

Let the planting cost be Rs. x

Then the SP at a loss of 15% = $\frac{x \times 85}{100}$ = Rs. $\frac{85x}{100}$

SP at a gain of

$11.5\% = \frac{x \times 111.5}{100} = Rs. \frac{111.5x}{100}$

Now, by the given condition

$\frac{111.5x}{100} - \frac{85x}{100} = 53$

$\frac{26.5x}{100} = 53$

$x = Rs.\ 200$

Video Solution:

Q3 Text Solution:

Let Ravi bought the land for 100 units.

Suresh bought the land for 110 units.

Tushar bought the land at

$110 \times 120\% = 132$ units

Again, let Sanjay had a similar land of price 100 units (Since Ravi and Sanjay both bought their lands at the same price).

Vikas bought the land at 90 units.

Mohan bought the land at $90 \times 70\% = 63$ units

Now, according to the condition, the sum of the price that Tushar and Mohan paid for their respective lands is ₹ 21,850 more than what Ravi paid.

So, we have

[(132 + 63) - 100] units = 21,850

i.e., 95 units = 21,850

1 unit = 230

Hence, Ravi and Sanjay paid in total = 230(100 + 100) = ₹ 46,000

Video Solution:

Q4 Text Solution:

From question,

S.P. of 15 sq. ft of plot = C.P of 15 sq. ft of plot + S.P of 5 sq. ft of plot

S.P of (15 – 5 = 10) sq. ft of plot = C.P of 15 sq. ft of plot

Let C.P of 1 sq. ft of plot = Rs. 1

C.P of 10 sq. ft of plot = Rs. 10

S.P of 10 sq. ft of plot = Rs. 15

Gain = S.P of 10 sq. ft of plot - C.P of 10 sq. ft of plot = 15 - 10 = Rs. 5

$$Gain\% = \frac{\text{Gain}}{CP\ of\ 10\ sq.\ ft\ of\ plot} \times 100$$

$$= \frac{5}{10} \times 100$$

=50%

Hence, option (A) is the correct answer.

Video Solution:

Q5 Text Solution:

Let's first find the loss amount when the article is sold at 1/3rd of the original selling price with a loss of $16\frac{2}{3}\%$.

The loss percentage can be expressed as a fraction: $16\frac{2}{3}\%$ = $\frac{50}{3}$ %

Now, we know that the cost price (CP) of the article is Rs. 120.

Let's calculate the amount of loss:

Loss = $\frac{CP \times Loss\%}{100}$

Loss = $\frac{120 \times \frac{50}{3}}{100}$

Loss = $\frac{120 \times 50}{300}$

Loss = 120 $\times \frac{1}{6}$

Loss = Rs. 20

Now, we can find the selling price (SP) when the article is sold at a loss:

SP (at loss) = CP - Loss

SP (at loss) = 120 - 20

SP (at loss) = Rs. 100

We know that this selling price (at loss) is $\frac{1}{3}$rd of the original selling price. Let's denote the original selling price as "x". We can set up the equation:

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

Now, let's solve for x, the original selling price:

x = 100 × 3

x = 300

So, the original selling price of the article is Rs. 300.

Video Solution:

Q6 Text Solution:

Let the cost of each shirt = C

Then, the cost of each jacket = 3C

Kartik bought 18 jackets and S shirts (say).

Total Cost = 18 × 3C + SC = 54C + SC = C (S + 54)

Kartik bought S jacket and 18 shirts.

Total Cost = 18 × C + S (3C) = 3C (S + 6)

Thus, according to the question,

C (S + 54) (1 – $\frac{2}{17}$) = 3C (S + 6)

(S + 54) * 15/17 = 3*(S + 6)

(S + 54)*5 = 17*(S + 6)

5S + 270 = 17S +102

12S = 168

S = 14 Ans

Video Solution:

Q7 Text Solution:

Let, $33\frac{1}{3}\% = \frac{1}{3} = \frac{\text{Profit}}{\text{Cost}} = \frac{x}{3x}$ { let cp be 3x and profit be x }

Now, CP will be = 3x

And,

SP = 3x + x = 4x

$25\% = \frac{1}{4} = \frac{\text{New Profit}}{\text{New Cost}}$

According to the question:

- $\frac{(4x+1600)-(3x+1500)}{3x+1500} = \frac{1}{4}$
- $\frac{x+100}{3x+1500} = \frac{1}{4}$
- x = 1100

Therefore, cost price for Raju = 3x = Rs. 3300

Hence option (A) is the correct answer.

Video Solution:

Q8 **Text Solution:**

Let CP/kg = Rs. 10

Let SP/kg = Rs. 12 [As, Profit = 10 × 1.2 = 2]

On a particular day, he adds stones (p) to the rice.

CP of 1 kg = Rs. 10p

SP of 1 kg = Rs. 12(p+2) [Adding 2 kg of stones]

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

$\Rightarrow \frac{12(p+2)}{10p} = 1.25$

$\Rightarrow \frac{6(p+2)}{5p} = \frac{5}{4}$

$\Rightarrow 24p + 48 = 25p$

$\Rightarrow p = 48$

Video Solution:

Q9 **Text Solution:**

Since, they made 1700 sunglasses costing ₹ 240 each and an additional ₹ 25000 expense on them.

Thus, total Cost = (1700×240) + 25000

= ₹ 433000

Now we will calculate the revenue they earned from selling them. As, they are able to sell 1400 sunglasses in the summer season at ₹340 each.

So, the revenue earned by them during the summer season = ₹340 × 1400

= ₹ 476000

Also, the left over 300 pieces of sunglasses would have been sold by the company in off season 200 each.

Revenue earned through these 300 sunglasses = 300×200

= ₹ 60000

Total Revenue = ₹ 476000 + ₹60000 = ₹536000

Profit = Revenue – Cost

= ₹ 536000 – 433000

= ₹ 103000

Video Solution:

Q10 **Text Solution:**

Cost price = 60 × 30 = 1800

After two days weight of apples = 85% of 60 = 51 kg

Selling price of 25.5 kg apples = 25.5 × 45 = 1147.5

Third day weight of apples = 92% of 25.5 = 23.46 kg

Selling price of 23.46 kg apples = 23.46 × 50 = 1173

Total selling price of apples = 1147.5 + 1173 = 2320.5

Profit percentage = (2320.5 - 1800) / 1800 × 100

= 520.5 / 1800 × 100
= 29% (approx.)

Video Solution:

Q11 Text Solution:

At the end of 2040, let the price of apartment 'A' be ₹ m. At the end of 2040, let the price of apartment 'B' be ₹n.
m × 75% = n × 125%
m × 3/4 = n × 5/4
3m = 5n .....(1)
Again, according to the condition given in the question,
m × 3/4 × 3/4 + n × 5/4 × 5/4 = 42 crores
9m + 25n = 42 × 16 crores
9m + 25n = 672 .....(2)
Put equation (1) in (2)
3 × 3m + 25n = 672 crores
3 × 5n + 25n = 672
40n = 672 crores
n = 672/40 = 16.8 crores
Since 3m = 5n
3m = 5 × 16.8 = 84
m = 84/3 = 28 crores
Hence, option (B) is the correct answer.

Video Solution:

Q12 Text Solution:

Let the number of LED bulbs purchased be n. Then the cost price is 7n. The total expenses incurred would be 7n + W, where W refers to the wage.
Then SP in the first case = 11 × 100 + 10 × (n — 100)
Given profit is ₹ 200.
In this case:
1100 + 10n – 1000 - 7n - W = 200
=> 3n – W = 100
In second case:
1100 + 8n – 800 - 7n - W = -200 (Loss).
=> W-n = 500.
Adding the two equations: 2n = 600
n = 300.
Thus, W = 500 + 300 = ₹ 800

Video Solution:

Q13 Text Solution:

Let the cost price of the container filled with oil = Rs. x.

SP of the container filled with oil = 145% of ($\frac{3x}{5}$) + 118% of ($\frac{x}{3}$) + 115% of (1 - $\frac{3}{5}$ – $\frac{1}{3}$)x

= $\frac{87x}{100}$ + $\frac{118x}{300}$ + $\frac{23x}{300}$

= $\frac{402x}{300}$

Profit = SP – CP

=> 272 = $\frac{402x}{300}$ – x

=> $\frac{102x}{300}$ = 272

=> x = Rs. 800

Video Solution:

Q14 Text Solution:

As Rohit makes profit of 25%, cost price of mixture = $\frac{28}{1.25}$ = Rs.22.4

As the ratio of first kind to second kind of chocolates is 2:3, in 1 kg of mixture the quantities of first and second kind are $\frac{2}{5}$ kg and $\frac{3}{5}$ kg respectively.

Let P be the price of the expensive chocolate.

P × $\frac{2}{5}$ + $\frac{P}{2}$ × $\frac{3}{5}$ = 22.4

P = Rs 32.

Video Solution:

Q15 Text Solution:

Let the planting cost be Rs. x

Then the SP at a loss of 15% = $\frac{x \times 85}{100}$ = Rs. $\frac{85x}{100}$

SP at a gain of

$11.5\% = \frac{x \times 111.5}{100} = Rs. \frac{111.5x}{100}$

Now, by the given condition

$\frac{111.5x}{100} - \frac{85x}{100} = 10$

$\frac{26.5x}{100} = 10$

$x \approx Rs.\ 38$

Hence, option (B) is the correct answer.

Video Solution:

Q16 Text Solution:

Given that the selling price of the textbook is Rs. 876.

Let the marked price of the textbook is x and the cost price of the textbook is y.

Then, by the given condition,

$x \times \frac{100-27}{100} = 876$

$x = 1200$

Again, by the condition,

$y \times \left(\frac{160}{100}\right) = 1200$

$y = 750$

Hence, option (B) is the correct answer.

Video Solution:

Q17 Text Solution:

Let's denote the marked price (MP) of the painting as M and the cost price (CP) as C. We are given that the ratio of the marked price to the cost price is 8:5, which can be written as:

$\frac{M}{C} = \frac{8}{5}$

Now, let's find the selling price (SP) of the painting. We are given that the artist earned a profit of 16.5% on the cost price. Therefore, we can express the selling price in terms of the cost price as:

SP = C + 16.5% of C

SP = C + 0.165 × C

SP = 1.165 × C

Since the painting was sold at a discount, the selling price is less than the marked price:

SP = M - Discount

Discount = M - SP

Now, we want to find the discount percentage. To do this, we'll first express the discount as a percentage of the marked price:

Discount Percentage = $\frac{\text{Discount}}{M} \times 100$

Substitute the values of M and SP in terms of C:

Discount Percentage = $\frac{(\frac{8}{5} \times C) - (1.165 \times C)}{(\frac{8}{5} \times C)} \times 100$

Let's simplify the expression:

Discount Percentage = $\frac{8-5.825}{8} \times 100$

Discount Percentage = $\frac{2.175}{8} \times 100$

Discount Percentage ≈ 0.271875 × 100

Discount Percentage ≈ 27.19% = 27.2% (approx.)

Therefore, the discount percentage is approximately 27.2%.

Video Solution:

Q18 Text Solution:

If CP = Rs. 100, MP = Rs. 140.

Average SP = $\frac{140}{2}$ + 140 × $\frac{1}{5}$ × $\frac{85}{100}$ + {140 × (100-50-20)% × $\frac{80}{100}$}

= 127.4

Hence, profit percentage

= $\frac{(127.4 - 100)}{100}$ × 100

= 27.4

Video Solution:

Q19 Text Solution:

Let CP = 100

Then, MP = 240

Now there are two successive discounts of 25% and 20%

Hence SP = 240 × 0.75 × 0.8 = 144

Profit % = 44%

Video Solution:

Q20 Text Solution:

Let the M.P of the article be Rs 100

S.P =100 × (1 - $\frac{20}{100}$) × (1 - $\frac{5}{100}$) × (1 - $\frac{25}{100}$)

= Rs. 57

Overall percentage discount = 100 - 57 = 43%

Video Solution:

Q21 Text Solution:

Topic - Profit, loss and Discount

Let's denote the original cost price of the quilt as CP and the original selling price as SP_1.

We know the shopkeeper made a 25% profit, so we have:

SP_1 = CP × (1 + $\frac{25}{100}$) = 1.25 × CP

The quilt could have been acquired for 10% less, which means the reduced cost price is:

Reduced CP = CP × (1 - $\frac{10}{100}$) = 0.9 × CP

If the shopkeeper had sold the quilt for Rs 24 more, the new selling price would be:

New SP = SP_1 + 24 = 1.25 × CP + 24

With this new selling price, the profit would have been 50%:

New SP = Reduced CP × (1 + $\frac{50}{100}$) = 0.9 × CP × 1.5

Equate the two expressions for New SP:

1.25 × CP + 24 = 0.9 × CP × 1.5

Solve for CP:

1.25 × CP + 24 = 1.35× CP

0.1 × CP = 24

CP = 240

Now, the shopkeeper marks up the price by 40% and offers a 10% discount:
The marked-up price (MP) can be calculated as:

MP = CP × (1 + $\frac{40}{100}$) = 240 × (1 + 0.4) = 240 × 1.4 = 336

The final selling price (SP_2) after the 10% discount can be calculated as:

SP_2 = MP × (1 - $\frac{10}{100}$) = 336 × (1 - 0.1) = 336 × 0.9 = Rs. 302.4

Video Solution:

Q22 **Text Solution:**

Let the cost price of the article be 'x'.
When the seller marks up the price of the article by n and offers a discount of n, he incurs a loss of Rs. 100.
(1 + n)(1 – n)x = x – 100

Solving this we get, xn^2 = 100 ..... (1)
When the seller marks up the price by 3n and offers a discount of 2n, the selling price of the article will be (1 + 3n)(1 – 2n)x = x – 300

$x + nx – 6n^2x = x – 300$ ..... (2)
substituting (1) in, we get

n = $\frac{1}{3}$ and x = 900
When the seller marks up the price by 2n and offers a discount of n, the selling price of the article will be (1 + 2n)(1 – n)x.
Substituting the values of x and n we get SP = Rs. 1000
Hence, profit will be Rs. 1000 – Rs. 900 = Rs. 100

Video Solution:

Q23 **Text Solution:**

Let the MRP of one box be Rs 100

SP of a box = $\frac{4}{5} \times 100 = Rs\ 80$

CP of a box = $\frac{1}{2} \times 100 = Rs\ 50$

So a carton's(4+1) price = $7 \times 50 = Rs\ 350$

SP of a carton = $6 \times 80 = Rs\ 480$

Now if someone buys 4 cartons, they get 1 free which means they are buying 5 cartons at the price of 4.
So in case of 15 cartons, a customer will pay for 12 cartons and will receive 15.

So CP of 15 cartons = $15 \times 350 = Rs\ 5250$

SP of 15 cartons(12 actually) = $12 \times 480 = Rs\ 5760$

So profit percentage= $\frac{5760-5250}{5250} = 9.71\%$

Video Solution:

Q24 **Text Solution:**

Let the selling prices of X, Y and Z be Rs 2p, Rs 5p and Rs 10p respectively. Also let their cost prices be Rs x, Rs y and Rs z respectively. So

$x \times \frac{140}{100} \times \frac{65}{100} = 2p$

$\Rightarrow \frac{91}{100}x = 2p$

$\Rightarrow x = \frac{200}{91}p$

$y \times \frac{130}{100} \times \frac{84}{100} = 5p$

$\Rightarrow \frac{273}{250}y = 5p$

$\Rightarrow y = \frac{1250}{273}p$

$z \times \frac{125}{100} \times \frac{90}{100} = 10p$

$\Rightarrow \frac{9}{8}z = 10p$

$\Rightarrow z = \frac{80}{9}p$

$So,\ given$

$y - x = 60$

$\Rightarrow \frac{1250}{273}p - \frac{200}{91}p = 60$

$\Rightarrow \left(\frac{1250-600}{273}\right)p = 60$

$\Rightarrow \frac{650}{273}p = 60$

$\Rightarrow p = Rs.\ \frac{126}{5}$

So

$z = \frac{80}{9}p = \frac{80}{9} \times \frac{126}{5} = Rs\ 224$

TTherefore, the SP of Z would be

224 x 1.25 x 0.9 = 252

Video Solution:

Q25 **Text Solution:**

Let Aisha purchase x and y silver and gold necklaces respectively.

Therefore, the total cost price for x silver and y gold necklaces = Rs. $(500x + 2025y)$

The marked price of all the necklaces =

$(500x + 2025y) \times \frac{128}{100} = 1$ Rupees

$.28(500x + 2025y)$

After applying 6.25% discount, the selling price of total selling price becomes

$= 1.28(500x + 2025y) \times \frac{93.75}{100} = 1$ Rupees

$.2(500x + 2025y)$

Hence, her total profit =

$(500x + 2025y)(1.2 - 1) = 0.2$ Rupees

$\times (500x + 2025y)$

Therefore,

$0.2 \times (500x + 2025y) = 45000$

$(500x + 2025y) = 225000$

So, $x = \frac{225000 - 2025y}{500} = \frac{9000 - 81y}{20}$

Now, since the number of necklaces must be a positive integer, so we have to take y as such that it is a multiple of 4 and 5, i.e., of 20.

Also, x will be maximum when 81y is minimum, i.e., when y is minimum.

Hence, y must be 20 and then, x

$= \frac{9000 - 81 \times 20}{20} = 369.$

Thus, Aisha can buy a maximum of 369 necklaces.

Video Solution:

Q26 **Text Solution:**

Let the CPof the item be Rs 100

So MP = Rs 175

SP after discount = $175 \times \frac{60}{100} = Rs\ 105$

So profit = $\frac{5}{100} \times 100 = 5\%$

Since 25% of the items are damaged, new effective CP of goods = Rs 75

So effective MP = $\frac{175}{100} \times 75 = Rs\ \frac{525}{4}$

As SP should remain same to earn the same profit, so if the discount % is d, then

$\frac{525}{4} \times \frac{(100-d)}{100} = 105$

$\Rightarrow 100 - d = \frac{105 \times 4 \times 4}{21}$

$\Rightarrow 100 - d = 80$

$\Rightarrow d = 20\%$

Video Solution:

Q27 **Text Solution:**

Let the list price per shirt be Rs. 1.

Total marked price = total number of shirts given = Rs. (3 + X)

Total discount given = total number of shirts given for free = Rs. X

Now, given that $\frac{X}{3+X} \times 100 \leq 50$

=> $X \leq 3$

Possible values of X = {0, 1, 2, 3} (Since X is the number of shirts, it cannot be negative.)

Number of possible values of X = **4** (correct answer)

Video Solution:

Q28 **Text Solution:**

Let the profit percentage be 2x% and discount be x%, so if original cost of the product is y, then

$y\left(1+\frac{2x}{100}\right) = 4500$

and

$\left(1.6y\right)\left(1-\frac{x}{100}\right) = 4500$

So

$\left(1.6y\right)\left(1-\frac{x}{100}\right) = y\left(1+\frac{2x}{100}\right)$

$\Rightarrow 1.6\left(\frac{100-x}{100}\right) = \left(\frac{100+2x}{100}\right)$

$\Rightarrow \frac{160-1.6x}{100} = \frac{100+2x}{100}$

$\Rightarrow 160 - 1.6x = 100 + 2x$

$\Rightarrow 3.6x = 60$

$\Rightarrow x = 16\frac{2}{3}\%$

So

$\left(1.6y\right)\left(1-\frac{x}{100}\right) = 4500$

$\Rightarrow 1.6y = \frac{4500}{\left(1-\frac{x}{100}\right)}$

$\Rightarrow Marked\ price = \frac{4500}{1-\frac{1}{6}} = \frac{4500\times6}{5} = Rs\ 5400$

Video Solution:

Q29 **Text Solution:**

We know the profit percentage and the profit ratio. Lets assume the cost prices of the shirt and the pant in such a way, that we obtain the same ratio and the percentages.

Ratio of profit earned on shirt and pant = 2:1

Profit percentage on shirt and pant are 50% and 20% respectively, so let's take

CP of shirt = Rs 100

So, profit on shirt = Rs 50

SP of shirt = Rs 150

Profit on pant = Rs 25

So CP of pant = $\frac{100}{20} \times 25 = Rs\ 125$

SP of pant = Rs 150
Ratio of markups = 4:3
Let the markups be Rs 4x and Rs 3x.
Ratio of marked prices = 6:5

$\Rightarrow \frac{100+4x}{125+3x} = \frac{6}{5}$

$\Rightarrow 500 + 20x = 750 + 18x$

$\Rightarrow x = Rs\ 125$

So marked price of Shirt = 100+4(125) = Rs 600
Marked price of pant = 125+3(125) = Rs 500
So discount on Shirt = 600-150 = Rs 450
Discount on Pant = 500-150 = Rs 350
So ratio of discount given on the pant to the shirt = 350 : 450 = 7:9

Video Solution:

Q30 Text Solution:

Total weight of all the spices = 30 kg
Profit per kg on selling at MP= $\frac{360}{30}$ = Rs 12
After offering 15% off on the spices, discount earned on 15 kgs = 360-285 = Rs 75
If 15 kg of spices is Marked at Rs x, then 15% discount= Rs 75, so

x= $\frac{75}{0.15} = Rs\ 500$

So MP of 30 kg spices = Rs 1000
So CP of 30 kg spices = 1000-360= Rs 640

Video Solution: