

CBSE Class –VII Mathematics
NCERT Solutions
Chapter 8 Comparing Quantities (Ex. 8.3)

Question 1. Tell what is the profit or loss in the following transactions. Also find profit percent or loss percent in each case.

- (a) Gardening shears bought for Rs. 250 and sold for Rs. 325.
- (b) A refrigerator bought for Rs. 12,000 and sold for Rs. 13,500.
- (c) A cupboard bought for Rs. 2,500 and sold for Rs. 3,000.
- (d) A skirt bought for Rs. 250 and sold for Rs. 150.

Answer: (a) Cost price of gardening shears = Rs. 250

Selling price of gardening shears = Rs. 325

Since, S.P. > C.P., therefore here is profit.

\therefore Profit = S.P. – C.P. = 325 – 250 = Rs. 75

Now Profit% = $\frac{\text{Profit}}{\text{C.P.}} \times 100 = \frac{75}{250} \times 100 = 30\%$

Therefore, Profit = Rs. 75 and Profit% = 30%

(b) Cost price of refrigerator = Rs. 12,000

Selling price of refrigerator = Rs. 13,500

Since, S.P. > C.P., therefore here is profit.

\therefore Profit = S.P. – C.P. = 13500 – 12000 = Rs. 1,500

Now Profit% = $\frac{\text{Profit}}{\text{C.P.}} \times 100 = \frac{1500}{12000} \times 100 = 12.5\%$

Therefore, Profit = Rs. 1,500 and Profit% = 12.5%

(c) Cost price of cupboard = Rs. 2,500

Selling price of cupboard = Rs. 3,000

Since, S.P. > C.P., therefore here is profit.

$$\therefore \text{Profit} = \text{S.P.} - \text{C.P.} = 3,000 - 2,500 = \text{Rs. } 500$$

$$\text{Now Profit\%} = \frac{\text{Profit}}{\text{C.P.}} \times 100 = \frac{500}{2500} \times 100 = 20\%$$

Therefore, Profit = Rs. 500 and Profit% = 20%

(d) Cost price of skirt = Rs. 250

Selling price of skirt = Rs. 150

Since, C.P. > S.P., therefore here is loss.

$$\therefore \text{Loss} = \text{C.P.} - \text{S.P.} = 250 - 150 = \text{Rs. } 100$$

$$\text{Now Loss\%} = \frac{\text{Loss}}{\text{C.P.}} \times 100 = \frac{100}{250} \times 100 = 40\%$$

Therefore, Profit = Rs. 100 and Profit% = 40%

Question 2. Convert each part of the ratio to percentage:

(a) 3 : 1

(b) 2 : 3 : 5

(c) 1 : 4

(d) 1 : 2 : 5

Answer: (a) 3 : 1

$$\text{Total part} = 3 + 1 = 4$$

$$\text{Therefore, Fractional part} = \frac{3}{4} : \frac{1}{4}$$

$$\Rightarrow \text{Percentage of parts} = \frac{3}{4} \times 100 : \frac{1}{4} \times 100$$

$$\Rightarrow \text{Percentage of parts} = 75\% : 25\%$$

(b) 2 : 3 : 5

$$\text{Total part} = 2 + 3 + 5 = 10$$

$$\text{Therefore, Fractional part} = \frac{2}{10} : \frac{3}{10} : \frac{5}{10}$$

$$\Rightarrow \text{Percentage of parts} = \frac{2}{10} \times 100 : \frac{3}{10} \times 100 : \frac{5}{10} \times 100$$

$$\Rightarrow \text{Percentage of parts} = 20\% : 30\% : 50\%$$

(c) 1 : 4

$$\text{Total part} = 1 + 4 = 5$$

$$\text{Therefore, Fractional part} = \frac{1}{5} : \frac{4}{5}$$

$$\Rightarrow \text{Percentage of parts} = \frac{1}{5} \times 100 : \frac{4}{5} \times 100$$

$$\Rightarrow \text{Percentage of parts} = 20\% : 80\%$$

(d) 1 : 2 : 5

$$\text{Total part} = 1 + 2 + 5 = 8$$

$$\text{Therefore, Fractional part} = \frac{1}{8} : \frac{2}{8} : \frac{5}{8}$$

$$\Rightarrow \text{Percentage of parts} = \frac{1}{8} \times 100 : \frac{2}{8} \times 100 : \frac{5}{8} \times 100$$

$$\Rightarrow \text{Percentage of parts} = 12.5\% : 25\% : 62.5\%$$

Question 3. The population of a city decreased from 25,000 to 24,500. Find the percentage decrease.

Answer: The population of a city decreased from 25,000 to 24,500.

$$\text{Population decreased} = 25,000 - 24,500 = 500$$

$$\text{Decreased Percentage} = \frac{\text{Population decreased}}{\text{Original population}} \times 100 = \frac{500}{25000} \times 100 = 2\%$$

Hence, the percentage decreased is 2%.

Question 4. Arun bought a car for Rs. 3,50,000. The next year, the price went up to Rs. 3,70,000. What was the percentage of price increase?

Answer: Increased in price of a car from Rs. 3,50,000 to Rs. 3,70,000.

$$\text{Amount change} = \text{Rs. } 3,70,000 - \text{Rs. } 3,50,000 = \text{Rs. } 20,000.$$

$$\text{Therefore, Increased percentage} = \frac{\text{Amount of change}}{\text{Original amount}} \times 100$$

$$= \frac{20000}{350000} \times 100 = 5\frac{5}{7}\%$$

Hence, the percentage of price increased is $5\frac{5}{7}\%$.

Question 5. I buy a T.V. for Rs. 10,000 and sell it at a profit of 20%. How much money do I get for it?

Answer: The cost price of T.V. = Rs. 10,000

Profit percent = 20%

Now, Profit = Profit% of C.P.

$$= \frac{20}{100} \times 10000 = \text{Rs. } 2,000$$

Selling price = C.P. + Profit

$$= 10,000 + 2,000 = \text{Rs. } 12,000$$

Hence, he gets Rs. 12,000 on selling his T.V.

Question 6. Juhi sells a washing machine for Rs. 13,500. She loses 20% in the bargain. What was the price at which she bought it?

Answer: Selling price of washing machine = Rs. 13,500

Loss percent = 20%

Let the cost price of washing machine be Rs. x .

Since, Loss = Loss% of C.P.

$$\Rightarrow \text{Loss} = 20\% \text{ of Rs. } x = \frac{20}{100} \times x = \frac{x}{5}$$

Therefore, S.P. = C.P. – Loss

$$\Rightarrow 13500 = x - \frac{x}{5} \Rightarrow 13500 = \frac{4x}{5}$$

$$\Rightarrow x = \frac{13500 \times 5}{4} = \text{Rs. } 16,875$$

Hence, the cost price of washing machine is Rs. 16,875.

Question 7. (i) Chalk contains Calcium, Carbon and Oxygen in the ratio 10 : 3 : 12. Find the

percentage of Carbon in chalk.

(ii) If in a stick of chalk, Carbon is 3 g, what is the weight of the chalk stick?

Answer: (i) Given ratio = 10 : 3 : 12

Total part = 10 + 3 + 12 = 25

Part of Carbon = $\frac{3}{25}$

Percentage of Carbon part in chalk = $\frac{3}{25} \times 100 = 12\%$

(ii) Quantity of Carbon in chalk stick = 3 g

Let the weight of chalk be x g.

Then, 12% of $x = 3$

$$\Rightarrow \frac{12}{100} \times x = 3$$

$$\Rightarrow x = \frac{3 \times 100}{12} = 25 \text{ g}$$

Hence, the weight of chalk stick is 25 g.

Question 8. Amina buys a book for Rs. 275 and sells it at a loss of 15%. How much does she sell it for?

Answer: The cost price of a book = Rs. 275

Loss percent = 15%

$$\text{Loss} = \text{Loss\% of C.P.} = 15\% \text{ of Rs. } 275 = \frac{15}{100} \times 275 = \text{Rs. } 41.25$$

$$\text{Therefore, S.P.} = \text{C.P.} - \text{Loss} = 275 - 41.25 = \text{Rs. } 233.75$$

Hence, Amina sells a book for Rs. 233.75.

Question 9. Find the amount to be paid at the end of 3 years in each case:

(a) Principal = Rs. 1,200 at 12% p.a.

(b) Principal = Rs. 7,500 at 5% p.a.

Answer: (a) Here, Principal (P) = Rs. 1,200, Rate (R) = 12% p.a., Time (T) = 3 years

$$\text{Simple Interest} = \frac{P \times R \times T}{100} = \frac{1200 \times 12 \times 3}{100} = \text{Rs. } 432$$

$$\text{Now, Amount} = \text{Principal} + \text{Simple Interest} = 1200 + 432 = \text{Rs. } 1,632$$

(b) Here, Principal (P) = Rs. 7,500, Rate (R) = 5% p.a., Time (T) = 3 years

$$\text{Simple Interest} = \frac{P \times R \times T}{100} = \frac{7500 \times 5 \times 3}{100} = \text{Rs. } 1,125$$

$$\text{Now, Amount} = \text{Principal} + \text{Simple Interest} = 7,500 + 1,125 = \text{Rs. } 8,625$$

Question 10. What rate gives Rs. 280 as interest on a sum of Rs. 56,000 in 2 years?

Answer: Here, Principal (P) = Rs. 56,000, Simple Interest (S.I.) = Rs. 280, Time (T) = 2 years

$$\text{Simple Interest} = \frac{P \times R \times T}{100}$$

$$\Rightarrow 280 = \frac{56000 \times R \times 2}{100}$$

$$\Rightarrow R = \frac{280 \times 100}{56000 \times 2}$$

$$\Rightarrow R = 0.25\%$$

Hence, the rate of interest on sum is 0.25%.

Question 11. If Meena gives an interest of Rs. 45 for one year at 9% rate p.a. What is the sum she has borrowed?

Answer: Simple Interest = Rs. 45, Rate (R) = 9% p.a., Time (T) = 1 year

$$\text{Simple Interest} = \frac{P \times R \times T}{100}$$

$$\Rightarrow 45 = \frac{P \times 9 \times 1}{100}$$

$$\Rightarrow P = \frac{45 \times 100}{9 \times 1}$$

$$\Rightarrow P = \text{Rs. } 500$$

Hence, she borrowed Rs. 500.