

Mathematics

(Chapter - 7) (Comparing Quantities) (Exercise 7.1) (Class - VII)

Question 1:

Convert the given fractional numbers to percent:

(a) $\frac{1}{8}$

(b) $\frac{5}{4}$

(c) $\frac{3}{40}$

(d) $\frac{2}{7}$

Answer 1:

(a) $\frac{1}{8} = \frac{1}{8} \times 100\% = \frac{25}{2}\% = 12.5\%$

(b) $\frac{5}{4} = \frac{5}{4} \times 100\% = 5 \times 25\% = 125\%$

(c) $\frac{3}{40} = \frac{3}{40} \times 100\% = \frac{3}{2} \times 5\% = \frac{15}{2}\% = 7.5\%$

(d) $\frac{2}{7} = \frac{2}{7} \times 100\% = \frac{200}{7}\% = 28\frac{4}{7}\%$

Question 2:

Convert the given decimal fractions to percents:

(a) 0.65

(b) 2.1

(c) 0.02

(d) 12.35

Answer 2:

(a) $0.65 = \frac{65}{100} \times 100\% = 65\%$

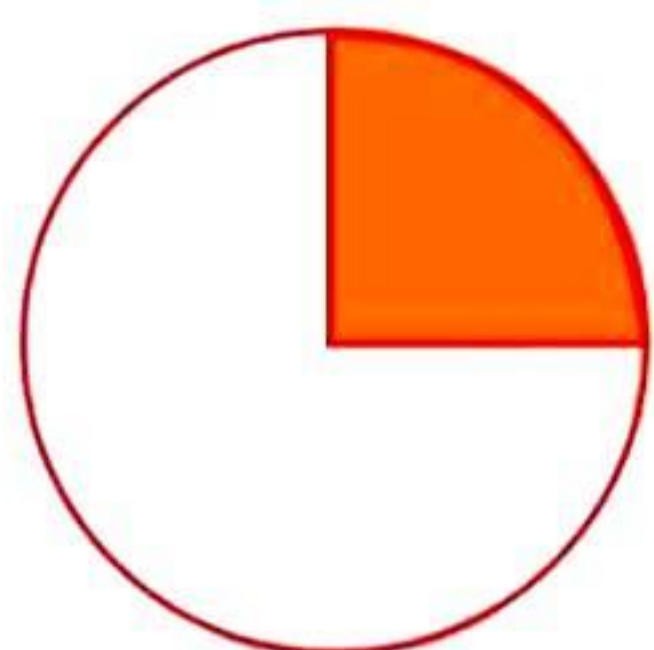
(b) $2.1 = \frac{2.1}{100} \times 100\% = 210\%$

(c) $0.02 = \frac{2}{100} \times 100\% = 2\%$

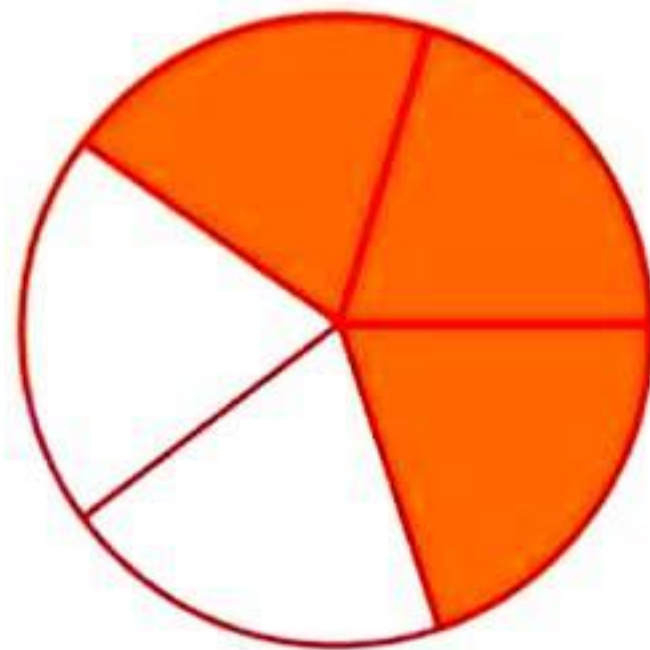
(d) $12.35 = \frac{12.35}{100} \times 100\% = 1235\%$

Question 3:

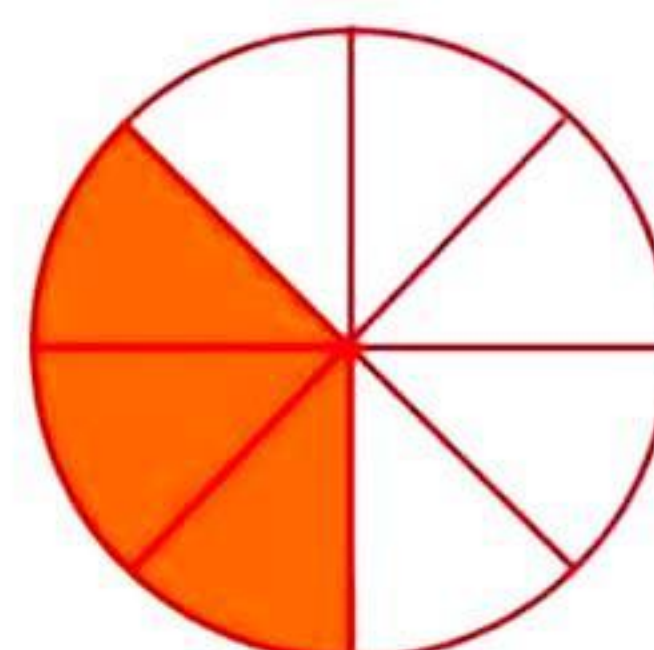
Estimate what part of the figures is coloured and hence find the percent which is coloured.



(i)



(ii)



(iii)

Answer 3:

(i) Coloured part = $\frac{1}{4}$

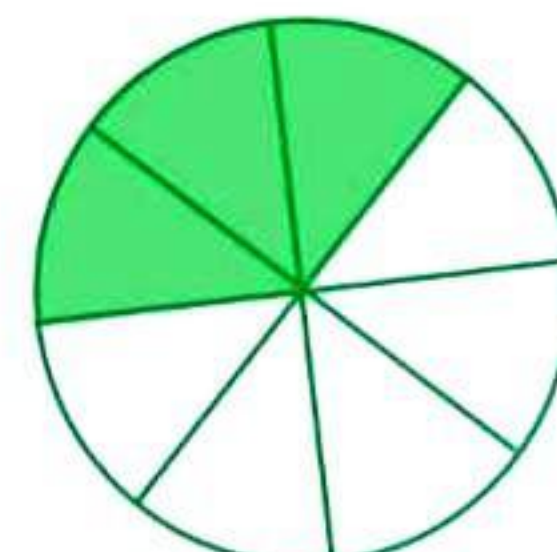
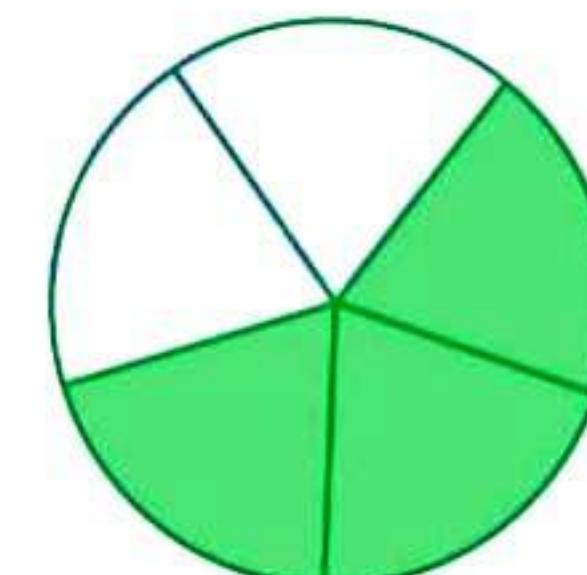
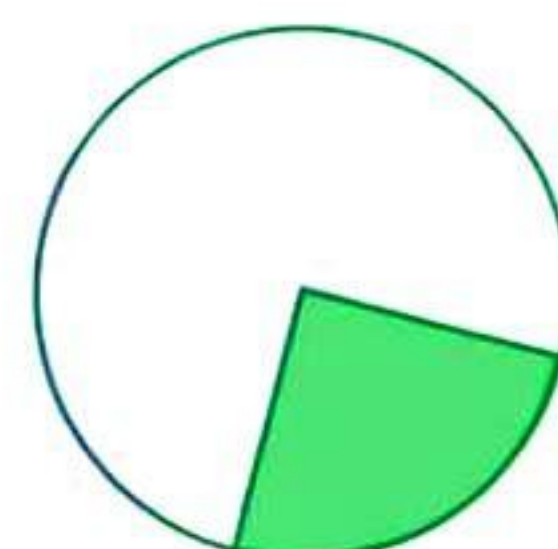
\therefore Percent of coloured part = $\frac{1}{4} \times 100\% = 25\%$

(ii) Coloured part = $\frac{3}{5}$

\therefore Percent of coloured part = $\frac{3}{5} \times 100\% = 60\%$

(iii) Coloured part = $\frac{3}{8}$

\therefore Percent of coloured part = $\frac{3}{8} \times 100\% = \frac{3}{2} \times 25\%$
 $= 37.5\%$



Question 4:

Find:

(a) 15% of 250**(b)** 1% of 1 hour**(c)** 20% of ₹2500**(d)** 75% of 1 kg**Answer 4:**

$$\text{(a)} \quad 15\% \text{ of } 250 = \frac{15}{100} \times 250 = 15 \times 2.5 = 37.5$$

$$\text{(b)} \quad 1\% \text{ of } 1 \text{ hour} = 1\% \text{ of } 60 \text{ minutes} = 1\% \text{ of } (60 \times 60) \text{ seconds} = \frac{1}{100} \times 60 \times 60 = 6 \times 6 = 36 \text{ seconds}$$

$$\text{(c)} \quad 20\% \text{ of } ₹2500 = \frac{20}{100} \times 2500 = 20 \times 25 = ₹500$$

$$\text{(d)} \quad 75\% \text{ of } 1 \text{ kg} = 75\% \text{ of } 1000 \text{ g} = \frac{75}{100} \times 1000 = 750 \text{ g} = 0.750 \text{ kg}$$

Question 5:

Find the whole quantity if:

(a) 5% of it is 600**(b)** 12% of it is ₹1080**(c)** 40% of it is 500 km**(d)** 70% of it is 14 minutes**(e)** 8% of it is 40 litres**Answer 5:**Let the whole quantity be x in given questions:**(a)** 5% of $x = 600$

$$\Rightarrow \frac{5}{100} \times x = 600 \quad \Rightarrow \quad x = \frac{600 \times 100}{5} = 12,000$$

(b) 12% of $x = ₹1080$

$$\Rightarrow \frac{12}{100} \times x = 1080 \quad \Rightarrow \quad x = \frac{1080 \times 100}{12} = ₹9,000$$

(c) 40% of $x = 500 \text{ km}$

$$\Rightarrow \frac{40}{100} \times x = 500 \quad \Rightarrow \quad x = \frac{500 \times 100}{40} = 1,250 \text{ km}$$

(d) 70% of $x = 14 \text{ minutes}$

$$\Rightarrow \frac{70}{100} \times x = 14 \quad \Rightarrow \quad x = \frac{14 \times 100}{70} = 20 \text{ minutes}$$

(e) 8% of $x = 40 \text{ litres}$

$$\Rightarrow \frac{8}{100} \times x = 40 \quad \Rightarrow \quad x = \frac{40 \times 100}{8} = 500 \text{ litres}$$

Question 6:

Convert given per cents to decimal fractions and also to fractions in simplest forms:

(a) 25%**(b)** 150%**(c)** 20%**(d)** 5%**Answer 6:**

S. No.	Per cents	Fractions	Simplest form	Decimal form
(a)	25%	$\frac{25}{100}$	$\frac{1}{4}$	0.25
(b)	150%	$\frac{150}{100}$	$\frac{3}{2}$	1.5
(c)	20%	$\frac{20}{100}$	$\frac{1}{5}$	0.2
(d)	5%	$\frac{5}{100}$	$\frac{1}{20}$	0.05

Question 7:

In a city, 30% are females, 40% are males and remaining are children. What percent are children?

Answer 7:

Given: Percentage of females = 30%

Percentage of males = 40%

Total percentage of females and males = $30 + 40 = 70\%$

Percentage of children

= Total percentage – Percentage of males and females

= $100\% - 70\% = 30\%$

Hence, 30% are children.

Question 8:

Out of 15,000 voters in a constituency, 60% voted. Find the percentage of voters who did not vote. Can you now find how many actually did not vote?

Answer 8:

Total voters = 15,000

Percentage of voted candidates = 60%

Percentage of not voted candidates = $100 - 60 = 40\%$

Actual candidates, who did not vote = $40\% \text{ of } 15000 = \frac{40}{100} \times 15000 = 6,000$

Hence, 6,000 candidates did not vote.

Question 9:

Meeta saves ₹400 from her salary. If this is 10% of her salary. What is her salary?

Answer 9:

Let Meera's salary be ₹ x .

Now, 10% of salary = ₹ 400

$\Rightarrow 10\% \text{ of } x = ₹ 400$

$\Rightarrow \frac{10}{100} \times x = 400$

$\Rightarrow x = \frac{400 \times 100}{10}$

$\Rightarrow x = 4,000$

Hence, Meera's salary is ₹ 4,000.

Question 10:

A local cricket team played 20 matches in one season. It won 25% of them. How many matches did they win?

Answer 10:

Number of matches played by cricket team = 20

Percentage of won matches = 25%

Total matches won by them = $25\% \text{ of } 20 = \frac{25}{100} \times 20 = 5$

Hence, they won 5 matches.

Mathematics

(Chapter - 7) (Comparing Quantities) (Exercise 7.2) (Class - VII)

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

Answer 1:

(a) Cost price of gardening shears = ₹ 250

Selling price of gardening shears = ₹ 325

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

$$\therefore \text{Profit} = S.P. - C.P. = ₹325 - ₹250 = ₹ 75$$

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

Therefore, Profit = ₹75 and Profit% = 30%

(b) Cost price of refrigerator = ₹ 12,000

Selling price of refrigerator = ₹13,500

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

$$\therefore \text{Profit} = S.P. - C.P. = ₹13500 - ₹12000 = ₹1,500$$

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

Therefore, Profit = ₹1,500 and Profit% = 12.5%

(c) Cost price of cupboard = ₹ 2,500

Selling price of cupboard = ₹ 3,000

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

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

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

Therefore, Profit = ₹ 500 and Profit% = 20%

(d) Cost price of skirt = ₹ 250

Selling price of skirt = ₹ 150

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

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

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

Therefore, Profit = ₹ 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 2:****(a)** 3 : 1

Total part = 3 + 1 = 4

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

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

\Rightarrow Percentage of parts = 75% : 25%

(b) 2 : 3 : 5

Total part = 2 + 3 + 5 = 10

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

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

\Rightarrow Percentage of parts = 20% : 30% : 50%

(c) 1 : 4

Total part = 1 + 4 = 5

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

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

\Rightarrow Percentage of parts = 20% : 80%

(d) 1 : 2 : 5

Total part = 1 + 2 + 5 = 8

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

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

\Rightarrow 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 3:

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

Population decreased = 25,000 - 24,500 = 500

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 ₹3,50,000. The next year, the price went up to ₹3,70,000. What was the percentage of price increase?

Answer 4:

Increased in price of a car from ₹ 3,50,000 to ₹3,70,000.

Amount change = ₹ 3,70,000 – ₹ 3,50,000 = ₹20,000.

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 ₹10,000 and sell it at a profit of 20%. How much money do I get for it?

Answer 5:

The cost price of T.V. = ₹ 10,000

Profit percent = 20%

Now, Profit = Profit% of C.P. = $\frac{20}{100} \times 10000 = ₹2,000$

Selling price = C.P. + Profit = ₹10,000 + ₹2,000 = ₹ 12,000

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

Question 6:

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

Answer 6:

Selling price of washing machine = ₹13,500

Loss percent = 20%

Let the cost price of washing machine be ₹ x .

Since, Loss = Loss% of C.P. \Rightarrow Loss = 20% of ₹ $x = \frac{20}{100} \times x = \frac{x}{5}$

Therefore, S.P. = C.P. – Loss

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

$\Rightarrow x = \frac{13500 \times 5}{4} = ₹16,875$

Hence, the cost price of washing machine is ₹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 7:

(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 $x = 3$

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

 Hence, the weight of chalk stick is 25 g.

Question 8:

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

Answer 8:

The cost of a book = ₹275 and loss percent = 15%
 Loss = Loss% of C.P. = 15% of ₹275 = $\frac{15}{100} \times 275 = ₹41.25$
 Therefore, S.P. = C.P. – Loss = ₹275 – ₹41.25 = ₹233.75
 Hence, Amina sells a book for ₹233.75.

Question 9:

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

- (a) Principal = ₹1,200 at 12% p.a.
 (b) Principal = ₹7,500 at 5% p.a.

Answer 9:

(a) Here, Principal (P) = ₹1,200, Rate (R) = 12% p.a., Time (T) = 3 years
 Simple Interest = $\frac{P \times R \times T}{100} = \frac{1200 \times 12 \times 3}{100} = ₹432$
 Now, Amount = Principal + Simple Interest = ₹1200 + ₹432 = ₹1,632
 (b) Here, Principal (P) = ₹7,500, Rate (R) = 5% p.a., Time (T) = 3 years
 Simple Interest = $\frac{P \times R \times T}{100} = \frac{7500 \times 5 \times 3}{100} = ₹1,125$
 Now, Amount = Principal + Simple Interest = ₹7,500 + ₹1,125 = ₹8,625

Question 10:

What rate gives ₹280 as interest on a sum of ₹56,000 in 2 years?

Answer 10:

Here, Principal (P) = ₹56,000, Simple Interest (S.I.) = ₹280, Time (T) = 2 years
 Simple Interest = $\frac{P \times R \times T}{100} \qquad \Rightarrow \qquad 280 = \frac{56000 \times R \times 2}{100}$

$$\Rightarrow \qquad R = \frac{280 \times 100}{56000 \times 2} \qquad \Rightarrow \qquad R = 0.25\%$$

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

Question 11:

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

Answer 11:

Simple Interest = ₹45, Rate (R) = 9% p.a., Time (T) = 1 years
 Simple Interest = $\frac{P \times R \times T}{100} \qquad \Rightarrow \qquad 45 = \frac{P \times 9 \times 1}{100}$

$$\Rightarrow \qquad P = \frac{45 \times 100}{9 \times 1} \qquad \Rightarrow \qquad P = ₹500$$

 Hence, she borrowed ₹500.