

GCSE Maths – Ratio, Proportion and Rates of Change

Interpreting Percentages

Worksheet

NOTES



SOLUTIONS



This worksheet will show you how to work out different types of interpreting percentages questions. Each section contains a **worked example**, a **question with hints** and then **questions for you to work through** on your own.

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Section A

Worked Example

A chair normally costs £300. In a sale, the price is reduced to 70% of the normal price. What is the sale price?

Step 1: Find 70% as a decimal multiplier, by taking the steps to convert it to a decimal.

$$70 \div 100 = 0.7$$

The decimal multiplier of 70% is 0.7.

Step 2: Multiply the decimal multiplier by the normal price.

$$0.7 \times £300 = £210$$

The sale price of the chair is £210.

Guided Example

In a recent survey, 420 people were asked which fruit they prefer. 40% said banana, 12% said apple and the rest chose a different fruit. How many people did not choose banana or apple as their favourite fruit?

Step 1: Using subtraction from 100%, find the percentage of people who did not prefer bananas or apples.

Step 2: Convert the percentage to a decimal multiplier.

Step 3: Multiply the decimal multiplier by the total number of people surveyed.



Now it's your turn!

If you get stuck, look back at the worked and guided examples.

1. Convert 23% to a decimal.
2. The price of a microwave is reduced by 25% in a clearance sale. If the original price was £160, what is it sold for in the sale?
3. Increase 35 by 20%.
4. In a competition, 40% of the contestants are eliminated in round one. In round two, 50% of the remaining contestants are eliminated. If 140 people started the competition, how many go into round three?



Section B

Worked Example

Write 42% as a fraction in its simplest form.

Step 1: Put the percentage over 100 to form a fraction.

$$42\% = \frac{42}{100}$$

Step 2: Simplify the fraction.

$$\frac{42}{100} = \frac{21}{50}$$

Guided Example

Three friends win a raffle prize of £2000. Dwight collects 45% of the prize, Andy collects 30% and Erin receives the rest. What fraction of the prize does Erin win and how much does she win?

Step 1: Calculate what percentage Erin receives by subtracting Dwight and Andy's share from 100%.

Step 2: Convert this percentage to a fraction by putting it over 100, then simplify.

Step 3: Find this fraction of £2000 to find the value of Erin's share.



Now it's your turn!

If you get stuck, look back at the worked and guided examples.

5. Write 23% as a fraction.

6. Write $\frac{2}{5}$ as a percentage.

7. Order the following values in increasing size:

42%, $\frac{5}{8}$, 0.2, 90%, $\frac{8}{9}$



Section C

Worked Example

Sandra scored 30 marks on a test with a total of 150 marks. The next time she scored 40 marks on a test which totalled 160 marks. Did her performance improve?

Step 1: Use the equation for working out a percentage, and substitute in Sandra's mark and the total marks for the first test.

$$\text{Percentage} = \frac{\text{Value}}{\text{Total}} \times 100 = \frac{30}{150} \times 100 = 20\%$$

Step 2: Use the equation for working out a percentage, and substitute in Sandra's mark and the total marks for the second test.

$$\text{Percentage} = \frac{40}{160} \times 100 = 25\%$$

Step 3: Compare the percentage score from each test.

On the first test, she scored 20% and on the second she scored 25%. Her performance improved.

Guided Example

200 people took course A and 125 people took course B. 188 people passed course A and 110 people passed course B. Which course had the highest pass rate?

Step 1: Using the equation for working out a percentage, calculate the pass rate for course A.

Step 2: Using the same equation, repeat to calculate the pass rate for course B.

Step 3: Compare the percentage pass rate of course A and B.



Now it's your turn!

If you get stuck, look back at the worked and guided examples.

8. A company has 180 employees. 40 employees filed a complaint. What percentage of employees filed a complaint?

9. I increase £300 by 26%. I increase the new sum of money I have by 40%. What percentage of the original price do I now have?

10. A special edition box of cereal contains 30% more food. If the special edition box weighs 390 g, how much does the cereal normally weigh?

11. A blender is on sale across several stores.

STORE A
original price: £160
sale: 15% reduction

STORE B
original price: £200
sale: buy blender for $\frac{3}{8}$
off

Emily wants to buy a blender. Which store should she buy it from?

