

Year 7 – Maths Knowledge Organiser Spring (2023/2024)



Place Value and Proportion Fractions and percentages of amounts

What do I need to be able to do?

By the end of this unit you should be able to:

- Find a fraction of a given amount
- Use a given fraction to find the whole or other fractions
- Find the percentage of an amount using mental methods
- Find the percentage of a given amount using a calculator

Keywords

Fraction: how many parts of a whole we have

Equivalent: of equal value

Whole: a number with no fractional or decimal part

Percentage: parts per 100 (uses the % symbol)

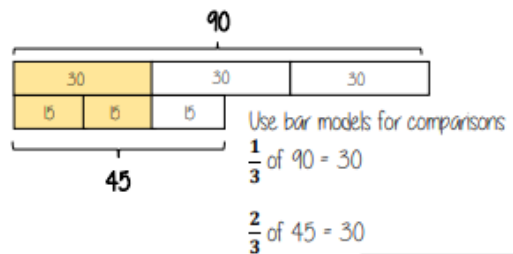
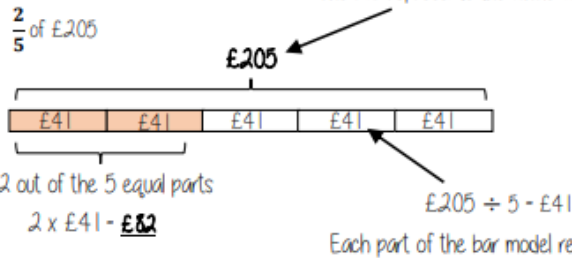
Place Value: the value of a digit depending on its place in a number. In our decimal number system, each place is 10 times bigger than the place to its right

Convert: change into an equivalent representation, often fraction to decimal to a percentage cycle

Fraction of a given amount

Find $\frac{2}{5}$ of £205

The bar represents the whole amount



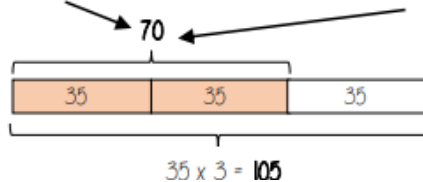
$$\therefore \frac{1}{3} \text{ of } 90 = \frac{2}{3} \text{ of } 45$$

Use a fraction of amount

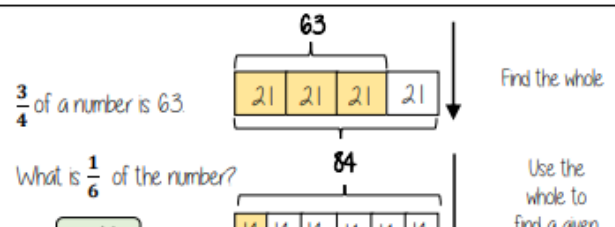
$\frac{2}{3}$ of a value is 70. What is the whole number?

$$70 \div 2 = 35$$

Each part of the bar model represents 35

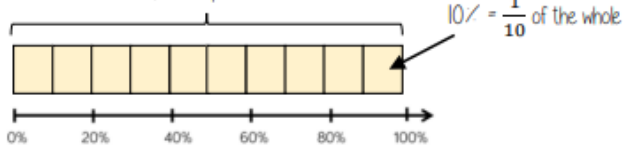


The wording of the question is important to setting up the bar model



Find the percentage of an amount (Mental methods)

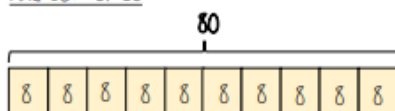
The whole represents 100%



$$10\% = \frac{1}{10} \text{ of the whole} \quad 50\% = \frac{5}{10} = \frac{1}{2} \text{ of the whole}$$

$$20\% = \frac{2}{10} = \frac{1}{5} \text{ of the whole} \quad 5\% = \frac{1}{20} \text{ of the whole}$$

Find 65% of 80



For bigger percentages it is sometimes easier to take away from 100%

Method 1

$$65\% = 10\% \times 6 + 5\% \\ = (8 \times 6) + 4 \\ = 52$$

Method 2

$$65\% = 50\% + 10\% + 5\% \\ = 40 + 8 + 4 \\ = 52$$

Find the percentage of an amount (Calculator methods)



Using a multiplier

Find 65% of 80

Fraction, decimal, percentage conversion

$$65\% = \frac{65}{100} = 0.65$$

The multiplier

$$0.65 \times 80 = 52$$

Using the percent button

Find 65% of 80

This brings up the % button on screen
You will see 65%

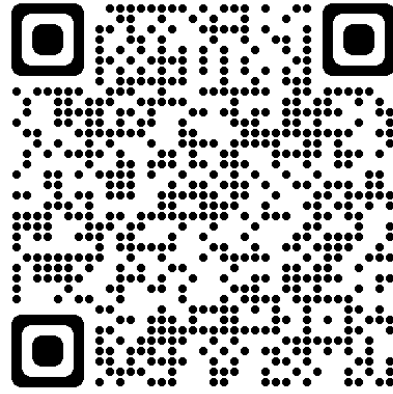
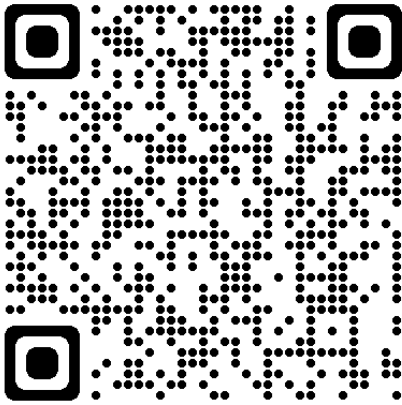
Type 65

Press **SHIFT** **(%)**

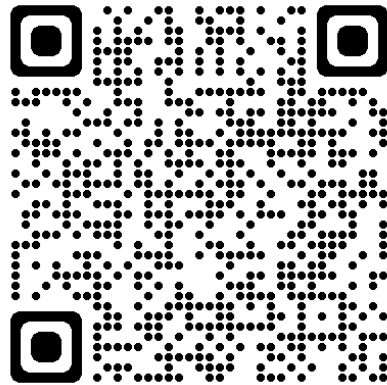
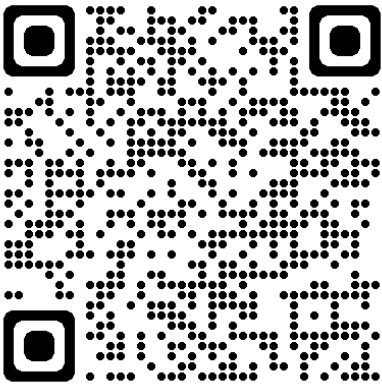
Press **×** **80** and then press **=**

You can also use the calculator to support non calculator methods and find 1% or 10% then add percentages together

"of" can represent "x" in calculator methods



Find fractions of amounts



Find percentages of amounts.