# Scientific notation and scale

## Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the explanation and worked example. Show your working; use a calculator only where asked.

## What you will practise

- Represent very large and small measurements using scientific notation.
- Explain a method and check the reasonableness of a result.

Useful starting skills: Use the prerequisite operations and representations shown in the worked example.

Scientific notation writes $a\times10^{n}$ with $1\leq a<10$. Positive exponents represent large values; negative exponents represent small positive values.

When multiplying, multiply coefficients and add exponents. Divide coefficients and subtract exponents for division. Normalise the coefficient and keep measurement units consistent.

## Worked example

Calculate $(3\times10^{5})(4\times10^{(-2)})$.

Multiply coefficients:12; add exponents:3.

$12\times10^{3}=1.2\times10^{4}$.

Answer: $1.2\times10^{4}$

## Try it yourself

Name: _____ Date: _____

1. Write 6 300 000 in scientific notation.

2. Write 0.000045 in scientific notation.

## Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. $6.3\times10^{6}$

Move the decimal 6 places.

2. $4.5\times10^{(-5)}$

Five places to a coefficient 4.5.

Curriculum reference: VC2M9M02

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