

My mathematical journey

What do I need to remember from before?

Number lines (NP1, 2, 3, and 6)

Decimals (NP1, 2, and 3)

Fractions (NP7)

Finding a fraction of a number (NP7)

What will I learn about in this unit?

Equivalent fractions, decimals and percentages

Terminating and recurring decimals

Working with percentages

Where does this lead?

Proportional reasoning (NP10)

Contextual graphs (A9)

Percentage change (NP10, NP13)

Recurring decimals to fractions (NP14)

Key words and symbols: what I need to say and write accurately

32% means $\frac{32}{100}$
 "percent" means "out of 100"

A **terminating decimal** has a finite (fixed) number of decimal places, e.g. 0.215
 e.g. 0.3

A **recurring decimal** has an infinite number of decimal places and its digits have a repeating pattern. The **repetend** is the repeating part. We use dots to show the start and end of the repetend.
 e.g. $0.333333333 \dots = 0.\dot{3}$
 e.g. $0.804804804 \dots = 0.8\dot{0}4$

Fingertip facts: what I need to learn by heart

Tenths and fifths:

Fraction	$\frac{1}{10}$	$\frac{2}{10} = \frac{1}{5}$	$\frac{3}{10}$	$\frac{4}{10} = \frac{2}{5}$	$\frac{5}{10} = \frac{1}{2}$	$\frac{6}{10} = \frac{3}{5}$	$\frac{7}{10}$	$\frac{8}{10} = \frac{4}{5}$	$\frac{9}{10}$	$\frac{10}{10} = 1$
Decimal	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Percentage	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

Eighths and quarters:

Fraction	$\frac{1}{8}$	$\frac{2}{8} = \frac{1}{4}$	$\frac{3}{8}$	$\frac{4}{8} = \frac{2}{4} = \frac{1}{2}$	$\frac{5}{8}$	$\frac{6}{8} = \frac{3}{4}$	$\frac{7}{8}$	$\frac{8}{8} = \frac{4}{4} = \frac{2}{2} = 1$
Decimal	0.125	0.25	0.375	0.5	0.625	0.75	0.875	1
Percentage	12.5%	25%	37.5%	50%	62.5%	75%	87.5%	100%

Ninths and thirds:

Fraction	$\frac{1}{9}$	$\frac{2}{9}$	$\frac{3}{9} = \frac{1}{3}$	$\frac{4}{9}$	$\frac{5}{9}$	$\frac{6}{9} = \frac{2}{3}$	$\frac{7}{9}$	$\frac{8}{9}$	$\frac{9}{9} = 1$
Decimal	0.1̇	0.2̇	0.3̇	0.4̇	0.5̇	0.6̇	0.7̇	0.8̇	0.9̇ = 1
Percentage	11.1̇%	22.2̇%	33.3̇%	44.4̇%	55.5̇%	66.6̇%	77.7̇%	88.8̇%	99.9̇% = 100%

My mathematical journey

What do I need to remember from before?

Number lines: single and double (NP1 – NP8)

Approximating numbers (NP1 – NP7)

Inequalities (NP1)

Fractions (NP7)

Directed numbers (NP6)

What will I learn about in this unit?

Using my calculator accurately and efficiently

Approximating numbers

Estimating answers to calculations

Error intervals for rounding

Truncation

Where does this lead?

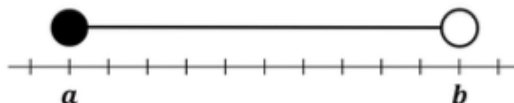
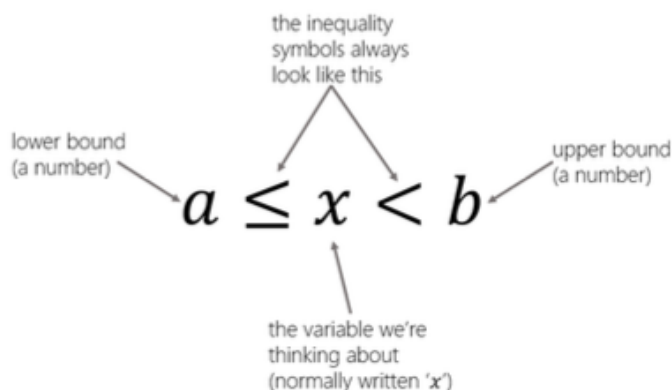
Solving complex problems using the calculator (all future units)

Checking answers by estimating (all future units)

Problems with bounds (NP14)

Key words and symbols: what I need to say and write accurately

- An **error interval** uses inequalities to show the range of values a number could be. We can show it with inequalities *and* on a number line.



- A **surd** is a root that does not have an integer or fraction answer, such as $\sqrt{2}$ or $\sqrt[3]{10}$.

Symbol	\approx	$<$	\leq	$>$	\geq
How to read it	is approximately equal to	is less than	is less than or equal to	is greater than	is greater than or equal to

Fingertip facts: what I need to learn by heart

Time frame conversions	Days in the months
1 minute = 60 seconds	January: 31 days
1 hour = 60 minutes	February: 28 days (and 29 days in a leap year)
1 day = 24 hours	March: 31 days
1 week = 7 days	April: 30 days
1 year = 52 weeks	May: 31 days
1 year = 365 days	June: 30 days
1 leap year = 366 days	July: 31 days
	August: 31 days
	September: 30 days
	October: 31 days
	November: 30 days
	December: 31 days

My mathematical journey

What do I need to remember from before?

Multiplicative reasoning (NP3)
 Fractions (NP7)
 Double number lines and ratio tables (NP8)
 Percentages (NP8)

What will I learn about in this unit?

Direct and inverse proportion
 Proportional reasoning in various contexts
 Percentage changes and decimal multipliers

Where does this lead?

Ratio (NP11)
 Advanced proportion and rates of change (NP13)
 Contextual graphs (A9)
 Probability (SP3)

Key words and symbols: what I need to say and write accurately

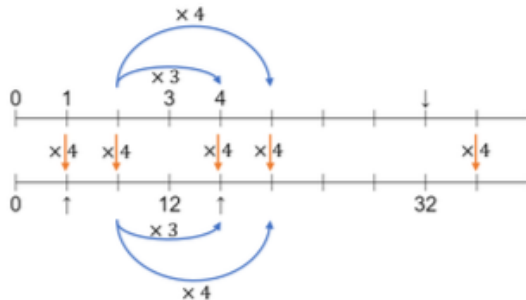
If two quantities are in **direct proportion**, the following two facts are true:

- There is a multiplicative relationship between them (e.g. if one doubles, the other doubles).
- If one is 0, the other is 0.

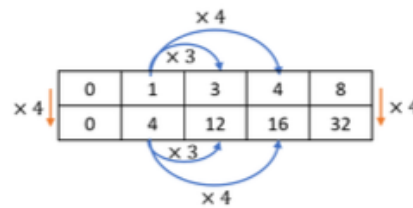
If two quantities are in **inverse proportion**, the following fact is true:

- There is an inverse multiplicative relationship between them (e.g. if one doubles, the other halves).

A **double number line** shows a multiplicative relationship.



A **ratio table** shows a multiplicative relationship, like a double number line but without the scale.



(Notice how both these diagrams show the same information.)

Fingertip facts: what I need to learn by heart

- When working with direct or inverse proportion, I can only multiply or divide.
- To increase a quantity by a percentage, I add the percentage onto 100%, convert this to a decimal and multiply.
 - e.g. To increase £40 by 12%, I find $100\% + 12\% = 112\% = 1.12$ and calculate $£40 \times 1.12$
- To decrease a quantity by a percentage, I subtract the percentage from 100%, convert this to a decimal and multiply.
 - e.g. To decrease £40 by 12%, I find $100\% - 12\% = 88\% = 0.88$ and calculate $£40 \times 0.88$