

My mathematical journey

What do I need to remember from before?

Percentage multipliers (NP8, NP10)
 Proportional reasoning (NP10)
 Cartesian graphs (A6, A9, A10)
 Manipulating algebra (A5, A10)

What will I learn about in this unit?

Reverse percentages
 Simple interest
 Direct and inverse proportion
 Compound units
 Combining ratios

Where does this lead?

Compound interest (NP16)
 Proportion with squares, cubes and roots (NP16)
 Instantaneous and average rates of change (A16)
 Areas under graphs (A16)

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

Word	Explanation
p.a.	<i>per annum</i> , Latin for "every year"
direct proportion	as one amount increases, the other increases <u>at the same rate</u>
k	the <u>constant of proportionality</u> , which is the rate of change
\propto	<i>is proportional to</i>
inverse proportion	as one amount increases, the other <i>decreases</i> at the same rate
density	a measure of how spread out particles in an object are
pressure	a measure of how spread out a force is
speed	a measure of distance per unit of time
compound units	a measure combining two other measures

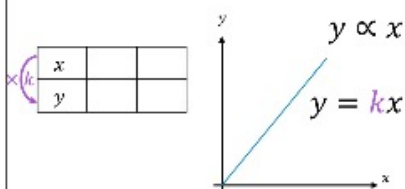
Fingertip facts: what I need to learn by heart

 To calculate a percentage: **original** \times **multiplier** = **new**

 To return to the original whole: **original** = $\frac{\text{new}}{\text{multiplier}}$

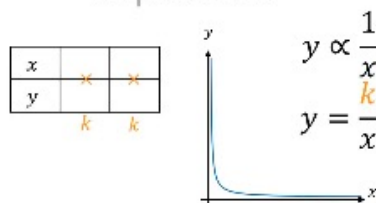
Direct Proportion

 As one increases, the other increases at the same rate.

 y is proportional to x


Inverse Proportion

 As one increases, the other decreases at the same rate.

 y is proportional to the reciprocal of x


$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$\text{Pressure} = \frac{\text{force}}{\text{area}}$$

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$