Your notes

GCSE Maths: revision notes

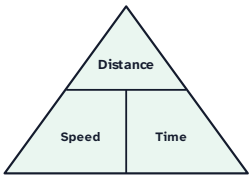
Speed, density and pressure

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Speed

- **Speed** = distance ÷ time. Distance = **speed** × time. Time = distance ÷ **speed**.
- 150 km in 2.5 hours is an average **speed** of 60 **km/h**.
- Change minutes into hours by dividing by 60: 45 minutes = 0.75 hours. 1 hour 30 minutes is 1.5 hours, not 1.3 hours.



Distance = Speed × Time

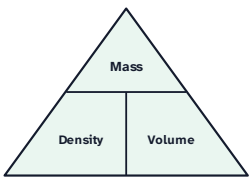
Speed = Distance ÷ Time

Time = Distance ÷ Speed

Cover the one you want: what's left shows how to work it out.

Density

- **Density** = mass ÷ volume. Mass = **density** × volume. Volume = mass ÷ **density**.
- A 500 g block with a volume of 200 cm^3 has a **density** of 2.5 g/cm^3.



Mass = Density × Volume

Density = Mass ÷ Volume

Volume = Mass ÷ Density

Cover the one you want: what's left shows how to work it out.

Pressure

- **Pressure** = force ÷ area. Force is in newtons (N), area in m^2, and **pressure** in N/m^2 (also called pascals).
- A force of 600 N on an area of 2 m^2 gives a **pressure** of 300 N/m^2.

Converting compound units

- Convert each unit separately. 72 **km/h** = 72 000 m in 3600 seconds = 20 m/s.
- 1 m/s = 3.6 **km/h**: multiply by 3600 (seconds in an hour), then divide by 1000 (metres in a kilometre).
- Rates of pay and unit prices are **compound measures** too, such as £9.50 per hour or 60p per kg.

Worked examples

A car travels 150 km in 2 hours 30 minutes. Find its average speed.

Change the time to hours: 30 minutes is half an hour. **2.5 hours**

Speed = distance ÷ time. **150 ÷ 2.5 = 60**

Answer: 60 km/h

Key terms

Compound measure	A measure made from two other measures, such as speed from distance and time.
Speed	Distance travelled ÷ time taken.
Density	Mass ÷ volume.
Pressure	Force ÷ area.
km/h	Kilometres per hour, a unit of speed.
g/cm³	Grams per cubic centimetre, a unit of density.
N/m²	Newtons per square metre, a unit of pressure.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. A car travels 150 km in 2.5 hours. What is its average speed?
2. How far do you travel in 3 hours at 45 mph?
3. How long does it take to travel 200 km at 80 km/h?
4. What is 45 minutes as a decimal of an hour?
5. A block has a mass of 500 g and a volume of 200 cm³. What is its density?
6. How do you work out density?
7. A force of 600 N acts on an area of 2 m². What is the pressure?
8. Convert 72 km/h into m/s.

Answers

1. 60 km/h
2. 135 miles
3. 2.5 hours
4. 0.75

Your notes

5. 2.5 g/cm^3
6. Mass divided by volume
7. 300 N/m^2
8. 20 m/s

What to do next

Practise 12 questions on this topic

Try 7 exam questions, with mark schemes

Read the lesson, one step at a time

Free revision for GCSE and KS3 at lycolearn.co.uk. Some notes are for one exam board only, and say so in brackets.

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