

# Ratio, proportion and rates of change

## Units of measure

You need to be able to convert between units of measure.



### SNAPIT! Converting between units of measure

Time: 1 year = 365 days (366 days in a leap year)	Length: 1 km = 1000 m 1 m = 100 cm 1 cm = 10 mm
1 year = 12 months	Area: 1 m <sup>2</sup> = 10 000 cm <sup>2</sup> 1 cm <sup>2</sup> = 100 mm <sup>2</sup>
1 day = 24 hours	Volume: 1 litre = 1000 ml 1 ml = 1 cm <sup>3</sup>
1 hour = 60 minutes	Weight: 1 kg = 1000 g
1 minute = 60 seconds	

### NAILIT!



Multiply to convert to a smaller unit of measure.

Divide to convert to a larger unit of measure.

Use your common sense – are you expecting the answer to be smaller or larger after conversion?

1 kg = 1000 g  
Since you are moving to a larger unit of measure, you must divide.

Make sure you give the correct unit in the answer.  
You could convert all the units to mm instead of cm. If it doesn't say in the question which units to use, you can use either.

If you know these standard conversions, you can multiply or divide to convert between units.

### WORKIT!

- 1 Convert 2.4 km into m.

$$2.4 \times 1000 = 2400 \text{ m}$$

- 2 Convert 720 g into kg.

$$720 \div 1000 = 0.72 \text{ kg}$$

$$1 \text{ km} = 1000 \text{ m}$$

Since you are moving to a smaller unit of measure, you must multiply.

### WORKIT!

- 1 How many minutes are there in half a day?

$$\text{Half a day} = 12 \text{ hours}$$

$$12 \times 60 = 720 \text{ minutes}$$

Multiply, since the unit is smaller.

- 2 Work out the perimeter of this rectangle.

$$12.5 \div 10 = 12.5 \text{ cm}$$

Divide by 10 since the unit is larger.

$$\text{Perimeter} = 12.5 + 12.5 + 3.2 + 3.2$$

$$= 31.4 \text{ cm}$$

