

Measuring accurately

Focus

Accurate measuring is extremely important in engineering and machine-operated processes.

Metric units of length are:

metres (m)

centimetres (cm)

millimetres (mm)

micrometres (μm)

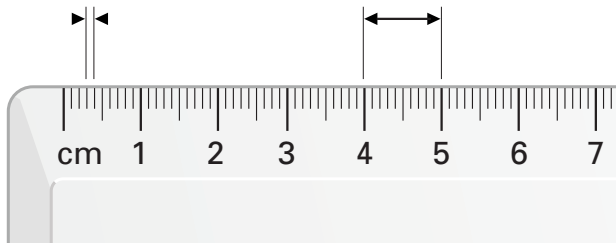
Most engineering and mechanical components are measured in **millimetres** or fractions of a millimetre called **micrometres**.

1000 μm = 1 mm.

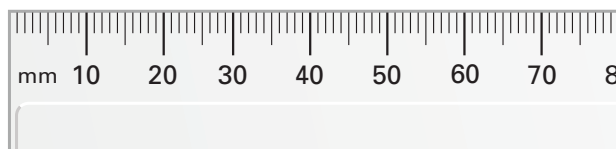
Millimetres are the tiny marks shown on a ruler. Most standard rulers are marked in **millimetres** and **centimetres**, but only the centimetres are numbered.

1 millimetre

1 centimetre



Special engineering rulers label every 10 millimetres.



Micrometres are too small to measure with rulers.

Special tools such as these digital Vernier callipers can measure to this degree of accuracy.



Fact

1 000 000 μm = 1 m

How many **mm** in 4 **cm**?
How many **mm** in 3.5 **cm**?

Remember!

10 mm = 1 cm

Measuring accurately

Task

Task 1

Use a metric ruler to measure the lines accurately in mm.

1  _____ mm

2  _____ mm

3  _____ mm

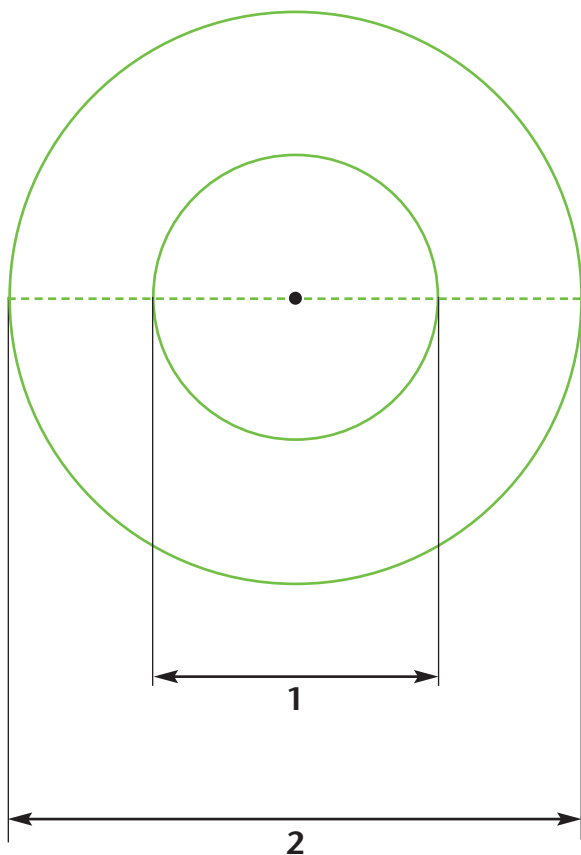
Tip

If you do not have a special engineering ruler, remember:

1 cm = 10 mm

Task 2

Measure the diameters accurately in mm.



Tip

A diameter is a straight line drawn through a circle, passing through the centre.

Diameter 1 = _____ mm

Diameter 2 = _____ mm