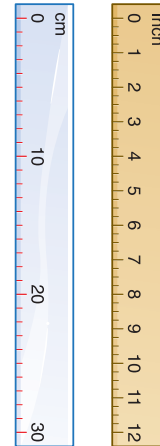


# What measure?

In the building trade measurements are given in millimetres and metres. Some of John's older customers have never measured in metres and millimetres (metric measures). They measure in feet and inches (imperial measures), so John has to be able to change measurements from millimetres to metres and from feet and inches to metres and millimetres.



## Activity 1

John is often asked to lay decking. Deck boards are usually 2.4 m long and 140 mm wide. Although 2.4 m looks less than 140 mm but it is much longer. To compare them we need to change them to the same unit.

Deck board length = 2.4 m =  $2.4 \times 1000$  mm = 2400 mm

1 Change 1.8 m to millimetres.

$$1.8 \text{ m} = 1.8 \times 1000 = \boxed{\phantom{0000}} \text{ mm}$$

2 Change 140 mm to metres.

$$140 \text{ mm} = 140 \div 1000 = \boxed{\phantom{000}} \text{ m}$$

3 Change these measurements to millimetres.

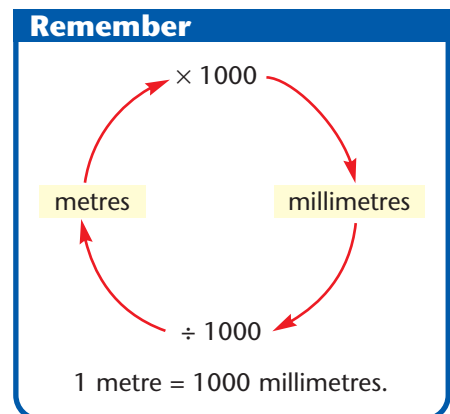
$$2.3 \text{ m} = \dots\dots\dots \text{ mm}$$

$$1.4 \text{ m} = \dots\dots\dots \text{ mm}$$

4 Change these measurements to metres.

$$1034 \text{ mm} = \dots\dots\dots \text{ m}$$

$$3096 \text{ mm} = \dots\dots\dots \text{ m}$$



## Talk about it

- What measures of length do you know?
- Which are imperial and which are metric?
- Did you know that 1 foot is about 30 cm? If you are using a calculator you can be more accurate and use 1 foot = 305 mm (30.5 cm)

## Activity 2

The dimensions of garden sheds and stores are often given in feet (ft) and inches (in).

A tool chest is 3 ft 11 in  $\times$  2 ft 6 in  $\times$  3 ft 2 in.

**Step 1** Change the length to millimetres.

$$3 \text{ ft} = 3 \times 305 = 915 \text{ mm}$$

$$11 \text{ in} = 11 \times 25.4 = 279.4 \text{ mm}$$

$$3 \text{ ft } 11 \text{ in} = 915 \text{ mm} + 279.4 \text{ mm} = 1194.4 \text{ mm}$$

**Step 2** Change from millimetres to metres.

$$1194.4 \text{ mm} \div 1000 = 1.1944 \text{ m}$$

The length is 1.19 m correct to two decimal places.

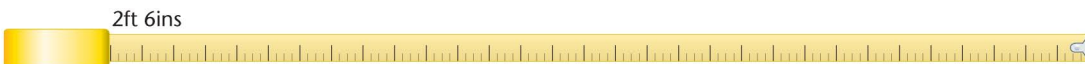
1 Change 2ft 6in to metres.

$$2 \text{ ft} = 2 \times 305 = \boxed{\phantom{000}} \text{ mm}$$

$$6 \text{ in} = 6 \times 25.4 = \boxed{\phantom{000}} \text{ mm}$$

$$2 \text{ ft } 6 \text{ in} = \boxed{\phantom{000}} \text{ mm}$$

$$= \dots\dots\dots \text{ m}$$



2 Change 3 ft 2 in to metres.

$$3 \text{ ft} = \dots\dots\dots$$

$$2 \text{ in} = \dots\dots\dots$$

$$3 \text{ ft } 2 \text{ in} \dots\dots\dots$$

3 A garden shed measures 10 ft  $\times$  8 ft  $\times$  7 ft 6 in.

Work out the dimensions in metres.

$$10 \text{ ft} = \dots\dots\dots$$

$$8 \text{ ft} = \dots\dots\dots$$

$$7 \text{ ft } 6 \text{ in} = \dots\dots\dots$$

**Remember**

1 foot = 305 mm  
so to change between the units

```

graph TD
    feet -- "× 305" --> mm
    mm -- "÷ 305" --> feet
            
```

1 inch = 25.4 mm  
so to change between the units

```

graph TD
    inch -- "× 25.4" --> mm
    mm -- "÷ 25.4" --> inch
            
```