

LEARNER GUIDE



Includes review questions

Training support material for:

RIICCM201E

Carry out measurements and calculations

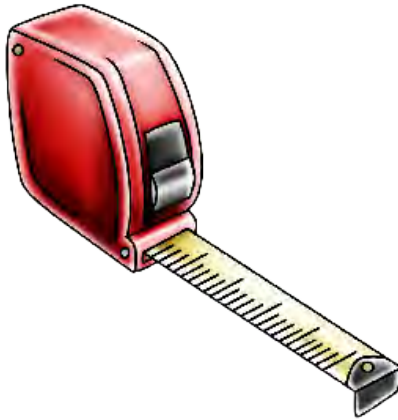
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INTRODUCTION TO MEASUREMENTS AND CALCULATIONS



Measurements and calculations

Measurements and calculations are used in Civil Construction for many different tasks. Measurements and calculations must be accurate and clearly recorded.

Accurate measurements and calculations will make sure that:

Correct quantities of materials are ordered



Materials are cut to correct sizes



The work is done in line with plans and specifications



Waste is kept to a minimum



Quotes are accurate



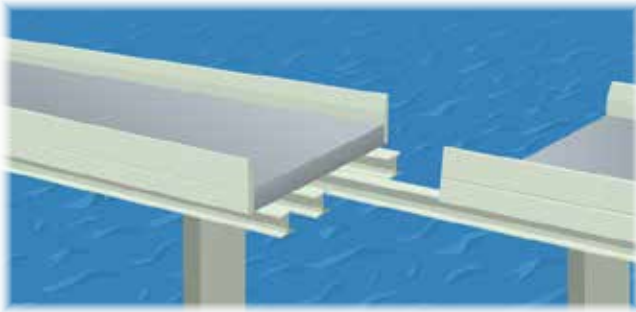
Work is carried out safely



Measurements and calculations (continued)

If measurements and calculations are not correct, accurate and clearly recorded it may cause:

Poor workmanship



Wasted time or delays in completing the job



Wasted money



Safety issues

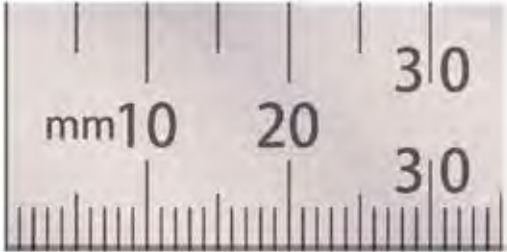

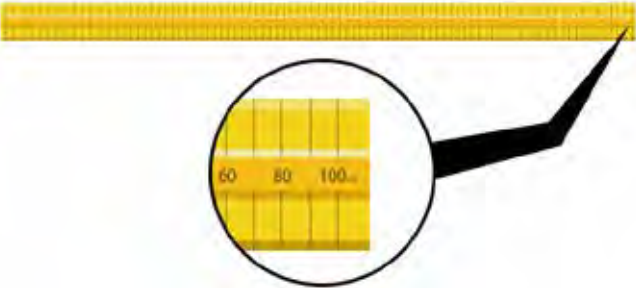



Units of measure

Measurement is finding a number that shows the amount or size of something. Measurements can be taken and recorded as either metric or imperial. The metric system is the internationally agreed system of measure. While some countries still use the imperial system. The Australian building trades adopted the metric system in 1966.

This learner's guide will always refer to the metric system.

The length, width, height and depth of objects or spaces can be measured in:

<p>Millimetres (mm)</p> 	<p>Centimetres (cm)</p> 
<p>Metres (m)</p> 	<p>Kilometres (km)</p> 

Units of measure (continued)

The weight or mass of an object can be measured in:

Milligrams (mg)

Something that weighs one milligram is almost impossible to see with the naked eye.



Grams (g)



Kilograms (kg)



Metric tonnes (t)

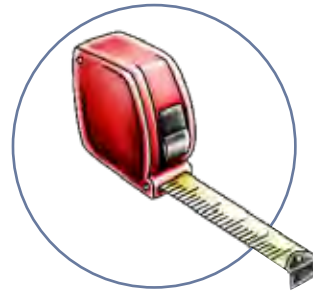


Units of measure (continued)

These tables show how metric and imperial weights and measurements compare with each other.

Metric →	Imperial
1 millimetre	0.03937 inches
1 centimetre	0.3937 inches
1 metre	1.0936 yards
1 kilometre	0.6214 miles
2.54 cm	1 inch
30.48 cm	1 foot
91.44 cm	1 yard
1.6093 km	1 mile

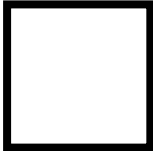
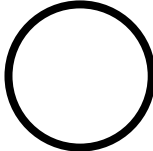

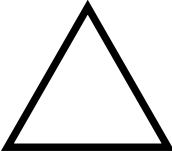

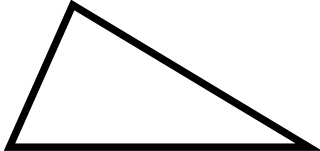

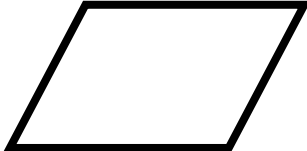
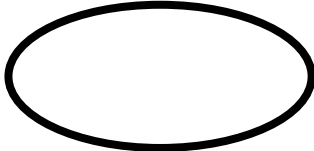
Imperial →	Metric
0.0353 ounces	1 gram
2.2046 pounds	1 kilogram
1.1023 short tonne	1 metric tonne
1 ounce	28.350 grams
1 pound	453.59 grams
1 short tonne	0.9072 metric tonnes



Basic shapes

Shapes can be described as either **two dimensional (2D)** or **three dimensional (3D)**.

Two dimensional (2D)

<p>Square</p> 	<p>Circle</p> 	<p>Rectangle</p> 
<p>Equilateral triangle</p>  <p>3 equal sides and 3 equal angles – always 60°</p>	<p>Isosceles triangle</p>  <p>2 equal sides and 2 equal angles</p>	<p>Scalene triangle</p>  <p>No equal sides and no equal angles</p>
<p>Trapezoid</p> 	<p>Parallelogram</p> 	<p>Ellipse</p> 



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