

Metric & Imperial Units

Metric Units

- Developed in Europe in 17th Century
- Based on decimal system where each unit is divided into blocks of 10, 100 or 1000 smaller units.
- The three main units for decimal measurement are
 - length in metres (m)
 - mass in kilograms (kg)
 - volume in cubic metres (m³) or capacity in litres (l)
- Common equivalences you need to know:
 - Length
 - 10mm = 1 cm
 - 100cm = 1 m
 - 1000m = 1km
 - Mass
 - 1000g = 1kg
 - 1000kg = 1 tonne
 - Volume
 - **1000cm³ = 1 litre**

Imperial Units

- Used in UK until early 1970's, still used extensively in USA.
- Much less intuitive to see the relationships between units.
 - length in inches, feet and yards {12 inches = 1 foot, 3 feet = 1 yard}
 - mass in pounds (lb), ounces (oz) and stones {16oz = 1lb, 14 lb = 1 stone}
 - volume in fluid ounces, pints and gallons {20 floz = 1 pint, 8 pints = 1 gallon}

Converting between units

In an exam you may be asked to convert between metric and imperial units.

You will be given the equivalences between a pair of imperial units, for example that 1 yard = 3 feet.

You may be given the equivalences between some lesser known metric and imperial units, for example that 1 acre = 0.4047 hectare.

You are expected to know the following approximate equivalences:

8km ≈ 5 miles

1kg ≈ 2.2 lb

1 litre ≈ 1.75 pints

Numerical Answers: (1) Thomas by 11 lbs (2) 8km/h above (3) Answer between 1090 and 1110 inclusive (4) England 32km or 20 miles (5) 25.027 inches, 2.543 cm

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Measure	Equivalent to
1 pyramid cubit	inches, correct to 3 decimal places
1 pyramid inch	cm, correct to 4 significant figures

[4] Complete the following table.

At the time when the pyramids were built, the Egyptians used different measures from those we use today.

It is believed that

1 pyramid inch = 1.0010846752 inches

1 pyramid cubit = 25 pyramid inches.

We also know that

1 inch = 2.54 cm.

Country in which most distance was covered was

Difference in the distance covered was

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[3] A cycle club organised a race that takes place over a fortnight. In the race, the competitors travelled a distance of 320 miles in England and 480 kilometres in France. In which country did the race cover the most distance? What was the difference between these distances?

5.

4.