

## The Systems of Units of Measurement

There are three main systems of measurement still in use. These are known as: **imperial units** shown here as (UK); U.S. American units shown as (US); and **metric units** which form the basis of the Système Internationale. The principal units in each of those systems (with the defining measure printed in **bold**) and their relationship are

### Length (UK) & (US)

12 inches	≡	1 foot
3 feet	≡	1 <b>yard</b>
22 yards	≡	1 chain
10 chains	≡	1 furlong
8 furlongs	≡	1 mile
1760 yards	≡	1 mile
5280 feet	≡	1 mile

### Length (metric)

10 millimetres	≡	1 centimetre (cm)
10 centimetres	≡	1 decimetre (dm)
10 decimetres	≡	1 <b>metre (m)</b>
10 metres	≡	1 decametre (dam)
10 decametres	≡	1 hectometre (hm)
10 hectometres	≡	1 kilometre (km)

### Area (UK) & (US)

144 square inches	≡	1 square foot
9 square feet	≡	1 square yard
4840 square yards	≡	1 acre
640 acres	≡	1 square mile

### Area (metric)

100 square mm	≡	1 square cm (cm <sup>2</sup> )
100 square cm	≡	1 square dm (dm <sup>2</sup> )
100 square dm	≡	1 square metre (m <sup>2</sup> )
100 square metres	≡	1 are (a)
100 ares	≡	1 hectare (ha)
100 hectares	≡	1 square km (km <sup>2</sup> )
10000 square cm	≡	1 square metre (m <sup>2</sup> )
1 million square metres	≡	1 square km (km <sup>2</sup> )

### Volume (UK) & (US)

1728 cubic inches	≡	1 cubic foot
27 cubic feet	≡	1 cubic yard

### Volume (metric)

1000 cubic mm	≡	1 cubic cm (cm <sup>3</sup> )
1000 cubic cm	≡	1 cubic dm (dm <sup>3</sup> )
1000 cubic dm	≡	1 cubic metre (m <sup>3</sup> )

### Mass (UK) & (US)

16 ounces	≡	1 <b>pound</b>
2000 pounds	≡	1 short ton (US)
2240 pounds	≡	1 long ton (UK)
437.5 grains	≡	1 ounce
14 pounds	≡	1 stone
8 stones	≡	1 hundredweight (UK)
20 hundredweight	≡	1 ton (UK)

### Mass (metric)

1000 milligrams (mg)	≡	1 gram (g)
1000 grams	≡	1 <b>kilogram (kg)</b>
1000 kilograms	≡	1 tonne (t)
200 milligrams	≡	1 carat

### Capacity (UK) & (US liquid)

4 gills	≡	1 pint
2 pints	≡	1 quart
4 quarts	≡	1 <b>gallon</b>

### Capacity (US dry)

2 pints	≡	1 quart
8 quarts	≡	1 peck
4 pecks	≡	1 <b>bushel</b>

### Capacity (metric)

10 millilitres (ml)	≡	1 centilitre (cl)
1000 millilitres	≡	1 <b>litre (1 or L)</b>
1000 litres	≡	1 cubic metre

**Note** (UK) and (US) gallons are NOT the same size so other measures of capacity having the same name are NOT the same size. Also a liquid pint is NOT the same size as a dry pint.

Originally every system had its own standard on which the other measures were based. Now the SI standards are accepted worldwide and all other measures are based on that. These values are **exact** -

1 yard ≡ 0.9144 metres

1 gallon (UK) ≡ 4.546 09 litres

1 pound ≡ 0.453 592 37 kilograms

1 gallon (US liquid) ≡ 3.785 411 784 litres

1 bushel (US) ≡ 35.239 070 166 88 litres

The old measure of a **troy ounce** is still used for dealing in precious metals and stones.

1 troy ounce ≡ 31.103 476 8 grams

Another measure of a **barrel** is often used for dealing in crude oil

1 barrel ≡ 42 gallons (US)