

MEASUREMENTS

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LAND LINEAR MEASURE

Imperial/US measurements

12 inches (in or ")	= 1 foot (ft or ')		
3 feet	= 1 yard (yd)		
1,760 yards	= 1 mile (mi)	= 5,280 feet	= 320 rods
5½ yards	= 1 rod (rd), pole or perch	= 16½ feet	
40 rods	= 1 furlong (fur)	= 220 yards	
22 yards	= 1 chain	= 4 rods, poles or perches	
220 yards	= 10 chains	= 1 furlong	
8 furlongs	= 1 mile	= 80 chains	
1,852 meters	= 1 nautical mile	= 6,076.115 feet (approx.)	

Surveying Measurements

7.92 inches	= 1 link (li) (Gunter's or surveyor's chain)	
		= 0.66 foot
100 links	= 1 chain (ch)	= 4 rods
		= 66 feet
80 chains	= 1 statute mile (mi.)	
	= 320 rods	= 5,280 feet
12 inches	= 1 link (Engineer's chain)	
100 links	= 1 chain	= 100 feet
52.8 chains	= 1 mile	= 5,280 feet

Metric measurements

10 millimetres (mm)	= 1 centimetre (cm)	
10 centimetres	= 1 decimetre (dm)	
10 decimetres	= 1 meter ^(AmE) /metre ^(BrE)	= 1,000 millimetres
10 metres	= 1 decametre/dekametre (dam)	
10 decametres	= 1 hectometre (hm)	= 100 metres
1,000 metres	= 1 kilometre (km)	
10,000 metres	= 10 kilometres	= 1 myriametre

Imperial/US to Metric Conversion

0.3937 inches	= 1 centimetre (cm)
39.37 inches	= 1 metre
3.28084 feet	= 1 metre (m)
1.0936 yards	= 1 meter ^(AmE) /metre ^(BrE)
0.621371 miles	= 1 kilometre (km)
2.5400 centimetres	= 1 inch
0.3048 metres	= 1 foot
0.9144 metres	= 1 yard
1.609344 kilometres	= 1 mile

LAND AREA MEASURE***Imperial/US measurements***

1 square inch (sq. in.)	= 0.006944 square feet	
144 sq inches	= 1 square foot (sq. ft. or ft ²)	
9 sq feet	= 1 square yard (sq. yd. or yd ²)	= 1,296 sq ins
100 sq.feet	= 1 square ^(US/Aus) (rarely used)	
4,840 sq yards	= 1 acre (ac)	= 43,560 sq feet
10 acres	= 1 square furlong	
640 acres	= 1 square mile (sq mi or mi ²)	= 1 US Section
6 miles square	= 1 township	= 36 sections/square miles

Metric measurements

100 sq millimetres (mm ²)	= 1 sq centimetre (cm ²)	
100 sq centimetres	= 1 sq decimetre (dm ²)	
100 sq decimetres	= 1 sq metre (m ²)	
100 sq metres	= 1 sq dekameter (dam ²)	= 1 are (a.)/square ^(Aus)
10,000 sq metres	= 1 sq hectometre (hm ²)	= 1 hectare (ha.)
100 ares	= 1 hectare	
100 hectares	= 1 sq kilometre (km ²)	
1,000,000 sq metres	= 1 sq kilometre	

Surveying/Land Measurements

272¼ sq ft	= 30¼ sq yards	= 1 sq rod (sq rd), pole or perch
160 sq rods	= 1 acre	
625 sq links	= 1 sq rod, pole or perch	
16 poles or perches	= 1 sq surveyor's chain	
16 sq rods	= 1 sq surveyor's chain	
40 sq rods	= 1 rood	
1 rood	= ¼ acre	
4 roods	= 1 acre	= 10 sq surveyor's chains
100 perches	= 1 arpent	= 0.85 acres (approx.) (or between 5/6 and 1¼ acres)
1 vara	= 33.33 inches (Texas)	

Imperial/US to Metric Conversion

0.1550 square inches	= 1 sq centimetre (cm ²)
10.764 sq feet (sq. ft.)	= 1 sq metre (m ²)
1.19599 sq yards	= 1 sq metre
0.3861 sq miles	= 1 sq kilometre
2.47107 acres	= 1 hectare (ha.)
6.452 sq centimetres	= 1 sq inch
0.0929 sq metres	= 1 sq foot (sq. ft.)
0.83613 sq metres	= 1 sq yard
2.590 sq kilometres	= 1 square mile
1 sq kilometre	= 247.105 acres
0.40468 hectares	= 1 acre

VOLUME MEASURE***Imperial/US measurements******Volume*** (*cu = cubic*)

1,728 cubic inches	= 1 cubic foot (cu. ft. or ft ²)
27 cubic feet	= 1 cubic yard (cu. yd. or yd ²)
128 cubic feet	= 1 cord
5.8 cubic feet	= 1 bulk barrel

Capacity (*cu = cubic*)*liquid volume*

1.7339 cu inches	= 1 fluid ounce (Brit.)	(1 ounce of water at 62 ^o or 1 avoirdupois ounce)
4 gills (gi)	= 1 pint (pt)	= 28.875 cu inches
2 pints	= 1 quart	
4 quarts	= 1 gallon	= 231 cu inches
	= 8 pints	= 32 gills
277.42 cu inches	= 1 Imperial gallon	
6.22883 cu feet	= 1 Imperial gallon	
231.04 cu inches	= 1 US gallon	
7.4794 cu feet	= 1 US gallon	
1 Imperial gallon	= 1.20094 US gallons	

dry volume(US)

2 pints	= 1 quart (qt)	= 67.20 cu inches
8 quarts	= 1 peck or 1 pint	= 537.605 cu inches
8 gallons (4 pecks)	= 1 bushel (bu)	= 2,154.02 cu inches
	= 32 quarts	
4 bushels	= 1 sack	
8 bushels	= 1 quarter	
36 bushels	= 1 chaldron/bulk barrel	

(In Britain, dry and liquid commodities are measured in the same way using the gill, pint, quart, peck, bushel and gallon as above, i.e. 32 gills = 8 pints = 4 quarts = 1 gallon = 1/8 bushel = 1/2 peck = 160 fluid ounces. In the US, 1 gallon is divided into 128 fluid ounces.)

Metric measurements***Volume*** (*cu = cubic*)

1,000 cu millimeter (mm ³)	= 1 cubic centimetre (cm ³)
1,000 cu centimetre	= 1 cubic decimetre (dm ³)
1,000 cu decimetre	= 1 cubic metre (m ³)
1,000 cu metres	= 1 cubic decametre (dam ³)
1,000 cu decametres	= 1 cubic hectometre
10 cu metres	= 1 decastere
1,000,000 cu centimetres	= 1 cubic metre

VOLUME MEASURE (cont)**Capacity**

10 millilitres (mL)	= 1 centilitre (cL)	
10 centilitres	= 1 decilitre (dL)	
10 litres	= 1 decalitre (daL)	
10 hectolitre	= 1 kilolitre	= 1,000 litres
1000 litres	= 1 cubic metre	

Imperial/US to Metric Conversion

1 cubic inch	= 16.387 cubic centimeters	
1 cubic foot	= 0.02832 cubic meters	
1 cubic centimeter (cm ³)	= 0.061024 cubic inches (cu in)	
1.7598 pints (Brit.)	= 1 litre ^(BrE) /liter ^(AmE)	
2.1134 pints (US)	= 1 liter	
0.879 quarts (Brit.)	= 1 litre	
1.0567 quarts (US)	= 1 liter	
4.5460 litres	= 1 gallon (Imperial gallon)	= 160 fluid ounces
3.7853 litres	= 1 gallon (US gallon)	= 128 fluid ounces
1 acre foot	= 43,560 cubic feet	= 325,693 US gallons

WEIGHT or MASS**Imperial/US measurements**

16 ounces	= 1 pound (lb.)
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(In Britain and US the Avoirdupois weights under 1 pound are the same. Above that the British measures up to 1 ton are as below)

14 pounds	= 1 stone
2 stones	= 1 quarter
4 quarters	= 1 hundredweight
20 hundredweights	= 1 ton
2,240 pounds	= 1 ton
1 ton	= 1,016 kilograms (kgs.)
2.2046 pounds	= 1 kilogram (kg.)
100 pounds	= 1 short hundredweight
112 pounds	= 1 long hundredweight
1 short ton	= 20 short hundredweights
1 long ton	= 20 long hundredweights

WEIGHT or MASS (cont)***Metric measurements***

10 milligrams (mg)	= 1 centigram (cg)	
10 centigrams	= 1 decigram (dg)	
10 decigrams	= 1 gram (g)	= 1,000 milligrams
10 grams	= 1 dekagram (dag)	
1,000 grams	= 1 kilogram (kg.)	
10 decagrams	= 1 hectogram	
10 hectograms	= 1 kilogram	
100 kilograms	= 1 quintal	
10 quintals	= 1 tonne or metric ton (t)	= 1,000 kg

Imperial/US to Metric Conversion

1 gram	= 0.0353 ounces
1 ounce (oz.)	= 28.35 grams
1 pound	= 454 grams
1 ton	= 1,016 kilograms
1 short ton (2,000 lbs)	= 0.9072 metric tons/tonnes
1 long ton (2,240 lbs)	= 1.01605 metric tons/tonnes
1 degree Celsius	= $\times 9/5$ (+32) degrees Fahrenheit
1 kilometre/hour	= 0.62137 miles/hour

MEASURES OF ANGLES AND ARCS

1 degree	= 0.01745 radians
60 seconds	= 1 minute
60 minutes	= 1 degree
90 degrees	= 1 quadrant
180 degrees	= half circle
360 degrees	= 1 full circles

AREAS AND VOLUME CALCULATIONS

Area of circle	= r^2 where: $\pi = 3.14159265$ $r =$ radius
Area of parabola	= base \times $2/3$ altitude
Volume of cylinder	= $\pi r^2 \times$ height
Volume of pyramid	= base length \times height $\div 3$
Volume of sphere	= $4/3 \pi r^3$