

# Conversion Factors

## Conversion Factors (Approximate)

Quantity	Imperial Unit	Metric Unit	Imperial to Metric Units	Metric to Imperial Units
Length	inch (in)	millimetre (mm) or centimetre (cm)	1 in = 25.4 mm	1 cm = 0.394 in
	foot (ft)	centimetre or metre (m)	1 ft = 30.5 cm	1 m = 3.28 ft
	yard (yd)	metre (m)	1 yd = 0.194 m	1 m = 1.09 yd
	furlong (fur)	metre (m) or kilometre (km)	1 fur = 201 m	1 km = 4.97 fur
	mile	kilometre (km)	1 mile = 1.61 km	1 km = 0.621 mile
	international nautical mile (for navigation)	kilometre (km)	1 n mile = 1852 m	1 m = 3.28 ft
Mass	ounce (oz)	gram (g)	1 oz = 28.3 g	1 g = 0.0353 oz
	pound (lb)	gram (g) or kilogram (kg)	1 lb = 454 g	1 kg = 2.20 lb
	stone	kilogram (kg)	1 stone = 6.35 kg	1 kg = 0.157 stone
	ton	tonne (t)	1 ton = 1.02 t	1 t = 0.984 ton
Area	square inch (in <sup>2</sup> )	square centimetre (cm <sup>2</sup> )	1 in <sup>2</sup> = 6.45 cm <sup>2</sup>	1 cm <sup>2</sup> = 0.155 in <sup>2</sup>
	square foot (ft <sup>2</sup> )	square centimetre (cm <sup>2</sup> ) or square metre (m <sup>2</sup> )	1 ft <sup>2</sup> = 929 cm <sup>2</sup>	1 m <sup>2</sup> = 10.8 ft <sup>2</sup>
	square yard (yd <sup>2</sup> )	square metre (m <sup>2</sup> )	1 yd <sup>2</sup> = 0.836 m <sup>2</sup>	1 m <sup>2</sup> = 1.20 yd <sup>2</sup>
	perch (p)	square metre (m <sup>2</sup> )	1 p = 25.3 m <sup>2</sup>	1 m <sup>2</sup> = 0.0395 p
	rood (rd)	hectare (ha)	1 rd = 0.101 ha	1 ha = 9.88 rd
	acre (ac)	hectare (ha)	1 ac = 0.405 ha	1 ha = 2.47 ac
	square mile	square kilometre (km <sup>2</sup> )	1 square mile = 2.59 km <sup>2</sup>	1 km <sup>2</sup> = 0.386 sq. mile
Volume	cubic inch (in <sup>3</sup> )	cubic centimetre (cm <sup>3</sup> )	1 in <sup>3</sup> = 16.4 cm <sup>3</sup>	1 cm <sup>3</sup> = 0.0610 in <sup>3</sup>
	cubic foot (ft <sup>3</sup> )	cubic metre (m <sup>3</sup> )	1 ft <sup>3</sup> = 0.0283 m <sup>3</sup>	1 m <sup>3</sup> = 35.3 ft <sup>3</sup>
	cubic yard (yd <sup>3</sup> )	cubic metre (m <sup>3</sup> )	1 yd <sup>3</sup> = 0.765 m <sup>3</sup>	1 m <sup>3</sup> = 1.31 yd <sup>3</sup>
	bushel (bus)	cubic metre (m <sup>3</sup> )	1 bus = 0.0400364 m <sup>3</sup>	1 m <sup>3</sup> = 27.5 bus
Volume (fluids)	fluid ounce (fl oz)	millilitre	1 fl oz = 28.4 ml	1 ml = 0.0352 fl oz
	pint (pt)	millilitre (ml) or litre (l)	1 pt = 568 ml	1 litre = 1.76 pt
	gallon (gal)	litre (l) or cubic metre (m <sup>3</sup> )	1 gal = 4.55 litre	1 m <sup>3</sup> = 220 gal
	acre foot	cubic metre (m <sup>3</sup> ) or megalitre (ML)	1 acre foot = 1230 m <sup>3</sup> = 1.23 ML	1 ML = 0.811 acre foot
Force	pound-force (lbf)	newton (N)	1 lbf = 4.45 N	1 N = 0.225 lbf
	ton-force (tonf)	kilonewton (kN)	tonf = 9.96 kN	1 kN = 0.100 tonf
Pressure	pound per square inch (psi)	kilopascal (kPa)	1 psi = 6.89 kPa	1 kPa = 0.145 psi
	atmosphere (atm)	kilopascal (kPa) or megapascal (MPa)	1 atm = 101 kPa	1 MPa = 9.87 atm
	ton per square inch (ton/in <sup>2</sup> )	megapascal (MPa)	1 ton/in <sup>2</sup> = 15.4 MPa	1 MPa = 0.647 ton/in <sup>2</sup>
	inch of mercury (in Hg) (for meteorology)	millibar (b)	1 in Hg = 33.9 mb 1 mb = 100 Pa	1 mb = 0.0295 in Hg
Velocity	mile per hour (mph)	kilometre per hour (km/h)	1 mph = 1.61 km/h	1 km/h = 0.621 mph
	knot (kn) (for navigation)		= 1 kn = 1.85 km/h	
Temperature	degree Fahrenheit (°F)	degree Celsius (°C)	°C = 5/9 (F - 32)	°F = 9/5 (C + 32)
Density	pound per cubic inch (lb/in <sup>3</sup> )	gram per cubic centimetre (g/cm <sup>3</sup> ) = tonne per cubic metre (t/m <sup>3</sup> )	1 lb/in <sup>3</sup> = 27.7 g/cm <sup>3</sup> 1 lb/in <sup>3</sup> = 27.7 t/m <sup>3</sup>	1 g/cm <sup>3</sup> = 0.0361 lb/in <sup>3</sup> 1 t/m <sup>3</sup> = 0.0361 lb/in <sup>3</sup>
	ton per cubic yard	tonne per cubic metre (t/m <sup>3</sup> )	1 ton/yd <sup>3</sup> = 1.33 t/m <sup>3</sup>	1 t/m <sup>3</sup> = 0.75 ton/yd <sup>3</sup>
Energy	British thermal unit (btu)	kilojoule (kJ)	1 Btu = 1.06 kJ	1 kJ = 0.948 btu
	therm (for electrical energy)	megajoule (MJ) kilowatt hour (kWh)	1 therm = 106 MJ = kWh = 3.60 MJ	1 MJ = 9.48 x 10 <sup>3</sup> therm
Power	horsepower (hp)	kilowatt (kW)	1 hp = 0.746 kW	1 kW = 1.34 hp
Time		second (s)		
		minute (min)	1 min = 60s	
		hour (h)	1 h = 3600s	
Frequency	cycle per second (c/s)	hertz (Hz)	1 c/s = 1 Hz	1 Hz = 1 c/s
Angular Velocity	revolution per minute (rpm)	radian per second (rad/s)	1 rpm = 0.105 rad/s	1 rad/s = 9.55 rpm
			revolution per minute (rpm)	

# Metric Conversion Tables

The bold figures in the central columns can be read as either the metric or the British Imperial measure. Thus 1 inch = 2.54 centimetres; or 1 centimetre = .3937 inch. For tens, move decimal point one place to the right, for hundreds two places, etc. Then convert higher quantities thus : 2ft. 9 in. = 33 in = 76.2 cm + 7.62 cm. = 83.82 cm.

LINEAR		AREA		VOLUME		CAPACITY					
Inches	Centimetres	Sq. Inches	Sq. Cms.	Cu. Inches	Cu. Cms.	Gallons	Litres				
0.393700	<b>1</b>	2.54000	0.15500	<b>1</b>	6.45160	0.061024	<b>1</b>	16.38706	0.21997	<b>1</b>	4.54609
0.787402	<b>2</b>	5.08000	0.31000	<b>2</b>	12.90320	0.122048	<b>2</b>	32.77413	0.43994	<b>2</b>	9.09218
1.181102	<b>3</b>	7.62000	0.46500	<b>3</b>	19.35480	0.183072	<b>3</b>	49.16119	0.65991	<b>3</b>	13.63827
1.574803	<b>4</b>	10.16000	0.62000	<b>4</b>	25.80640	0.244096	<b>4</b>	65.54826	0.87988	<b>4</b>	18.18436
1.968504	<b>5</b>	12.70000	0.77500	<b>5</b>	32.25800	0.305120	<b>5</b>	81.93532	1.09985	<b>5</b>	22.73045
2.362205	<b>6</b>	15.24000	0.93000	<b>6</b>	38.70960	0.366144	<b>6</b>	98.32238	1.31982	<b>6</b>	27.27654
2.755906	<b>7</b>	17.78000	1.08500	<b>7</b>	45.16120	0.427168	<b>7</b>	114.70945	1.53979	<b>7</b>	31.82263
3.149606	<b>8</b>	20.32000	1.24000	<b>8</b>	51.61280	0.488192	<b>8</b>	147.48358	1.97973	<b>8</b>	40.91481
3.543307	<b>9</b>	22.86000	1.39500	<b>9</b>	58.06440	0.549216	<b>9</b>	165.91902	2.22719	<b>9</b>	46.02916
Feet	Metres	Sq. Feet	Sq. Metres	Cu. Feet	Cu. Metres	Mass Ounces	Grams				
3.280840	<b>1</b>	0.3048	10.76391	<b>1</b>	0.09290	35.31467	<b>1</b>	0.02832	0.35274	<b>1</b>	28.349523
6.561680	<b>2</b>	0.6096	21.52782	<b>2</b>	0.18580	70.72934	<b>2</b>	0.05664	0.070548	<b>2</b>	56.699046
9.842520	<b>3</b>	0.9144	32.29173	<b>3</b>	0.27870	105.94401	<b>3</b>	0.08496	0.105812	<b>3</b>	85.048569
13.123359	<b>4</b>	1.2192	43.05564	<b>4</b>	0.37160	141.25868	<b>4</b>	0.11328	0.141096	<b>4</b>	113.398092
16.404199	<b>5</b>	1.5240	53.81955	<b>5</b>	0.46450	176.57335	<b>5</b>	0.14160	0.176370	<b>5</b>	141.747615
19.685038	<b>6</b>	1.8288	64.58346	<b>6</b>	0.55740	211.88802	<b>6</b>	0.160992	0.211644	<b>6</b>	170.094138
22.965878	<b>7</b>	2.1336	75.34737	<b>7</b>	0.65030	247.20269	<b>7</b>	0.19824	0.246918	<b>7</b>	198.446661
26.246718	<b>8</b>	2.4384	86.11128	<b>8</b>	0.74320	282.51736	<b>8</b>	0.22656	0.282192	<b>8</b>	226.796184
29.527558	<b>9</b>	2.7432	96.87519	<b>9</b>	0.83610	317.83203	<b>9</b>	0.25488	0.317466	<b>9</b>	255.145707
Yards	Metres	Sq. Yards	Sq. Metres	Cu. Yards	Cu. Metres	Pounds	Kilograms				
1.093613	<b>1</b>	0.91440	1.19599	<b>1</b>	0.83613	1.30795	<b>1</b>	0.76455	2.204622	<b>1</b>	0.453592
2.187226	<b>2</b>	1.82880	2.39198	<b>2</b>	1.67226	2.61590	<b>2</b>	1.52910	2.409244	<b>2</b>	0.907184
3.280839	<b>3</b>	2.74320	3.58797	<b>3</b>	2.50839	3.92180	<b>3</b>	2.29365	6.613866	<b>3</b>	1.360776
4.374452	<b>4</b>	3.65760	4.78396	<b>4</b>	3.34453	5.23180	<b>4</b>	3.05820	8.818488	<b>4</b>	1.814368
5.468065	<b>5</b>	4.57200	5.97995	<b>5</b>	4.18065	6.53975	<b>5</b>	3.82275	11.023110	<b>5</b>	2.267960
6.561678	<b>6</b>	5.48640	7.17594	<b>6</b>	5.01678	7.84770	<b>6</b>	4.58730	13.227732	<b>6</b>	2.721552
7.655291	<b>7</b>	6.40080	8.37193	<b>7</b>	5.85291	9.15565	<b>7</b>	5.35185	15.432354	<b>7</b>	3.175144
8.748904	<b>8</b>	7.31520	9.56792	<b>8</b>	6.68904	10.46360	<b>8</b>	6.11640	17.636976	<b>8</b>	3.628736
9.842517	<b>9</b>	8.22960	10.76391	<b>9</b>	7.52517	11.77155	<b>9</b>	6.88095	19.841598	<b>9</b>	4.082328
						CAPACITY					
Miles	Kilometres	Acres	Hectares	Pints	Litres	Cwt.	Kilograms				
0.621371	<b>1</b>	1.60934	2.41710	<b>1</b>	0.40469	1.75976	<b>1</b>	0.58826	0.019684	<b>1</b>	50.80234
1.242742	<b>2</b>	3.21869	4.94210	<b>2</b>	0.80938	3.51952	<b>2</b>	1.13652	0.039368	<b>2</b>	101.60469
1.864113	<b>3</b>	4.82803	7.41315	<b>3</b>	1.21407	5.27929	<b>3</b>	1.70478	0.059052	<b>3</b>	152.40704
2.485484	<b>4</b>	6.43738	9.88420	<b>4</b>	1.61876	7.03904	<b>4</b>	2.27305	0.078736	<b>4</b>	203.20938
3.106855	<b>5</b>	8.04672	12.35525	<b>5</b>	2.02345	8.79880	<b>5</b>	2.84131	0.098420	<b>5</b>	254.01173
3.728226	<b>6</b>	9.65606	14.82630	<b>6</b>	2.42814	10.55856	<b>6</b>	3.40957	0.118104	<b>6</b>	304.81408
4.349597	<b>7</b>	11.26541	17.29735	<b>7</b>	2.83283	12.31832	<b>7</b>	3.97783	0.13778	<b>7</b>	355.61642
4.970768	<b>8</b>	12.87475	19.76840	<b>8</b>	3.23752	14.07808	<b>8</b>	4.54609	0.157472	<b>8</b>	406.41977
5.592339	<b>9</b>	14.48410	22.23945	<b>9</b>	3.64221	15.83784	<b>9</b>	5.11435	0.177156	<b>9</b>	457.22112
POWER											
Horsepower	Kilowatts	Sq. Miles	Sq. Kolometres	Quarts	Litres	Tons	Kilograms				
1.341022	<b>1</b>	0.7457	0.38610	<b>1</b>	2.58999	0.87988	<b>1</b>	1.13652	0.000984	<b>1</b>	1016.0469
2.689204	<b>2</b>	1.4914	0.77220	<b>2</b>	5.17998	1.75976	<b>2</b>	2.27304	0.001968	<b>2</b>	2032.0938
4.023066	<b>3</b>	2.2371	1.15830	<b>3</b>	7.76997	2.63964	<b>3</b>	3.40956	0.002952	<b>3</b>	3048.1407
5.364088	<b>4</b>	2.9828	1.54440	<b>4</b>	10.35996	3.5152	<b>4</b>	4.54608	0.003936	<b>4</b>	4064.1876
6.705110	<b>5</b>	3.7285	2.93050	<b>5</b>	12.94995	4.39940	<b>5</b>	5.68260	0.004920	<b>5</b>	5080.2345
8.046132	<b>6</b>	4.4742	2.31660	<b>6</b>	15.53994	5.27928	<b>6</b>	6.81912	0.005904	<b>6</b>	6096.2814
9.387154	<b>7</b>	5.2199	2.70270	<b>7</b>	18.12993	6.15916	<b>7</b>	7.95564	0.006888	<b>7</b>	7112.3283
10.728176	<b>8</b>	5.9656	3.08880	<b>8</b>	20.71992	7.03904	<b>8</b>	9.09216	0.007872	<b>8</b>	8128.3752
12.069198	<b>9</b>	6.7113	3.47490	<b>9</b>	23.30991	7.91892	<b>9</b>	10.22868	0.008856	<b>9</b>	9144.4221

1 Metric ton = 1,000 kg.