

# CONVERSION GUIDE

## CONVERSION FORMULAE

**LENGTH**  
To convert

milli-inches into micrometres	Multiply by	25.4
inches into millimetres		25.4
inches into centimetres		2.54
inches into metres		0.0254
feet into millimetres		304.8
feet into centimetres		30.48
feet into metres		0.3048
yards into metres		0.9144
fathoms into metres		1.8288
chains into metres		20.1168
furlongs into metres		201.168
miles, statute into kilometres		201.168
miles, nautical into kilometres		1.852

**VALUME & CAPACITY**  
To convert

cubic inches into cubic centimetres	Multiply by	16.387064
cubic inches into litres		0.016387
cubic feet into cubic metres		0.0283168
cubic feet into litres		28.316847
cubic yards into cubic metres		0.7645549
UK pints into litres		0.5682613
UK quarts into litres		1.1365225
UK gallons into litres		4.54609
UK gallons into cubic metres		0.0045461
UK fluid ounces into cubic centimetres		28.413063

**AREA**  
To convert

square inches into square millimetres	Multiply by	645.16
square inches into square centimetres		6.4516
square feet into square centimetres		929.0304
square feet into square metres		0.092903
square yards into square metres		0.836127
square yards into acres		0.083613
acres into square metres		4046.8564
acres into hectares		0.4046856
square miles into square kilometres		2.589988

**MASS**  
To convert

grains into milligrams	Multiply by	64.79891
grains into metric carats		0.323995
grains into grams		0.064799
pennyweights into grams		1.555174
ounces into grams		28.349523
ounces troy into grams		31.103477
ounces into kilograms		0.0283495
pounds into kilograms		0.4535924
stones into kilograms		6.3502932
hundredweights into kilograms		50.802345
tons into kilograms		1016.0469
tons into metric tonnes		1.01605
tahils into grams		37.799
kati into kilograms		0.60479

**POWER**  
To convert

foot pounds-force per second into watt	Multiply by	1.35582
horsepower into watts		745.7
foot pounds-force per second into kilowatts		0.001356
horsepower into kilowatts		0.7457
horsepower into metric horsepower		1.01387

**VELOCITY**  
To convert

feet per second into centimetres per second	Multiply by	30.48
feet per second into metres per second		0.3048
miles per hour into kilometers per hour		1.609344

**FORCE**  
To convert

pounds force into newtons	Multiply by	4.44822
poundals into newtons		0.138255

**TEMPERATURE**  
To convert from degrees Fahrenheit to Centigrade:

$(X^{\circ}F - 32) \times \frac{5}{9} = Y^{\circ}C$

To convert from degrees Centigrade to Fahrenheit:

$(Y^{\circ}C \times \frac{9}{5}) + 32 = X^{\circ}F$

## MOTOTING CONVERSIONS

These Conversion charts indicate relative values. They are intended only as a guide and should not be used to calculate higher values where more than three decimal places would be needed.

**FUEL CONSUMPTION**

L/100km = mile/gal	mile/gal = L/100km
6.0 = 47.06	10 = 28.248
7.0 = 40.34	12 = 23.540
8.0 = 35.30	14 = 20.177
8.5 = 33.22	16 = 17.655
9.0 = 31.38	18 = 15.693
9.5 = 29.73	20 = 14.124
10.0 = 28.024	22 = 12.840
10.5 = 26.90	24 = 11.710
11.0 = 25.67	26 = 10.864
11.5 = 24.56	28 = 10.088
12.0 = 23.53	30 = 9.416
12.5 = 22.59	32 = 8.827
13.0 = 21.72	34 = 8.308
13.5 = 20.92	36 = 7.846
14.0 = 20.17	38 = 7.433
14.5 = 19.48	40 = 7.062
15.0 = 18.83	42 = 6.726
16.0 = 17.65	43 = 6.561
17.0 = 16.61	44 = 6.420
18.0 = 15.69	45 = 6.279
19.0 = 14.86	46 = 6.137
20.0 = 14.12	47 = 5.996
21.0 = 13.44	48 = 5.855
22.0 = 12.83	49 = 5.713
23.0 = 12.27	50 = 5.572

**TYRE PRESSURE**

lb/in = kPa	kPa = lb/in
25 = 172.36	155 = 22.48
26 = 179.26	160 = 23.20
27 = 186.16	165 = 23.93
28 = 193.05	170 = 24.66
29 = 199.95	175 = 25.38
30 = 206.84	180 = 26.11
31 = 213.74	185 = 26.83
32 = 220.63	190 = 27.56
33 = 227.53	195 = 28.28
34 = 234.42	200 = 29.00
35 = 241.31	205 = 29.73

**SPEED**

km/h = mile/h	mile/h = km/h
5.00 = 3.12	10 = 16
10.00 = 6.25	15 = 24
15.00 = 9.37	20 = 32
20.00 = 12.50	25 = 40
25.00 = 15.62	30 = 48
30.00 = 18.75	35 = 56
35.00 = 21.87	40 = 64
40.00 = 25.00	45 = 72
45.00 = 28.12	50 = 80
50.00 = 31.25	55 = 88
55.00 = 34.37	60 = 96
60.00 = 37.50	65 = 104
65.00 = 40.62	70 = 112
70.00 = 43.75	75 = 120
75.00 = 46.87	80 = 128
80.00 = 50.00	85 = 136
85.00 = 53.12	90 = 144
90.00 = 56.25	95 = 152
95.00 = 59.37	100 = 160
100.00 = 62.50	105 = 168
105.00 = 65.62	110 = 176
110.00 = 68.75	115 = 184
115.00 = 71.87	120 = 192
120.00 = 75.00	125 = 200
130.00 = 81.25	130 = 208
140.00 = 87.50	135 = 216
150.00 = 93.75	140 = 224

## IMPERIAL SYSTEM

**LENGTH**

1000 milli-inches = 1 inch
12 inches = 1 foot
3 feet = 1 yard
5.5 yards = 1 rod
220 yards = 1 furlong
40 rods = 1 furlong
5280 feet = 1 mile
1760 yards = 1 mile
8 furlongs = 1 mile
3 miles = 1 league
25 links = 1 rod
100 links = 1 chain
66 feet = 1 chain
22 yards = 1 chain
4 rods = 1 chain

**LENGTH (NAUTICAL)**

6 feet = 1 fathom
100 fathoms (approx) = 1 cable length
10 cable lengths = 1 nautical mile

**AREA**

144 sq ins = 1 sq foot
9 sq feet = 1 sq yard
30.25 sq = 1 sq rod
484 sq yds = 1 sq chain
1210 sq yds = 1 rood
4840 sq yds = 1 acre
160 sq rods = 1 acre
640 acres = 1 sq mile

## METRIC SYSTEM

**LENGTH**

1000 picometres = 1 nanometre
1000 nanometres = 1 micrometre
1000 micrometres = 1 millimetre
10 millimetres = 1 centimetre
100 millimetres = 1 decimetre
10 centimetres = 1 decimetre
1000 millimetres = 1 metre
100 millimetres = 1 metre
10 decimetres = 1 metre
100 metres = 1 hectometre
1000 metres = 1 kilometre
1852 nautical metres = 1 international nautical mile

**AREA**

100 sq millimetres = 1 sq centimetre
100 sq centimetres = 1 sq decimeter
10 000 sq centimetres = 1 sq metre
100 sq decimetres = 1 sq metre
10 000 sq metres = 1 hectare
100 hectares = 1 sq kilometre

**MASS**

1000 micrograms = 1 milligram
200 milligrams = 1 metric carat
1000 milligrams = 1 gram
5 metric carats = 1 gram
1000 grams = 1 kilogram
1000 kilograms = 1 megagram
1000 kilograms = 1 tonne

**ENERGY (WORK & HEAT)**

1000 millijoules = 1 joule
1000 joules = 1 kilojoule
1000 kilojoules = 1 megajoule
3.6 megajoules = 1 kilowatt hour
1000 megajoules = 1 gigajoule
1000 gigajoules = 1 terajoule

**AVOIRDUPOIS WEIGHT**

437.5 grains = 1 ounce
16 drams = 1 ounce
7000 grains = 1 pound
256 drams = 1 pound
16 ounces = 1 pound
14 pounds = 1 stone
2 stones = 1 quarter
100 pounds = 1 cental
112 pounds = 1 cwt
4 quarters = 1 cwt
35840 ounces = 1 ton
2240 pounds = 1 ton
20 cwts = 1 ton

**APOTHECARIES' WEIGHT**

20 grains = 1 scuple
3 scuples = 1 dram
8 drams = 1 ounce
12 ounces = 1 pound

*Ounce and pound are the same as in Troy Weight.*

**TROY WEIGHT**

24 grains = 1 pwt
20 pwt = 1 ounce
12 ounces = 1 pound

*Used for weighting gold, silver and jewels.*

**VOLUME**

1728 cu ins = 1 cu foot
46656 cu ins = 1 cu yard
27 cu ins = 1 cu yard

**CAPACITY**

8 fluid drams = 1 fluid ounce
5 fluid ounces = 1 gill
20 fluid ounces = 1 pint
4 gills = 1 pint
40 fluid ounces = 1 quart
2 pints = 1 quart
160 fluid ounces = 1 gallon
8 pints = 1 gallon
4 quarts = 1 gallon
2 gallons = 1 peck
4 pecks = 1 bushel
8 gallons = 1 bushel
64 gallons = 1 quarter
31 1/2 gallons = 1 barrel
2 barrels = 1 hogshead

**MARINERS' MEASURE**

6 feet = 1 fathom
120 fathoms = 1 cable length
7 1/2 cable lengths = 1 mile
5,280.2 feet = 1 statute mile
6,080.2 feet = 1 nautical mile

**SURVEYORS' MEASURE**

7.92 inches = 1 link
25 links = 1 rod
4 rods = 1 chain
10 sq chains = 1 acre
or 160 sq rods = 1 square mile
640 acres = 1 square mile
36 sq miles (6 miles sq) = 1 township

**VOLUME & CAPACITY**

1000 cu millimetres = 1 cu millimetre
1000 centimetres = 1 cu decimeter
1000 cu decimeters = 1 cu metre
1 millilitre = 1 centimetre
10 millilitres = 1 centilitre
10 centilitres = 1 decilitre
1000 millilitres = 1 litre
100 centilitres = 1 litre
100 litres = 1 hectolitre
1000 litres = 1 kilolitre
10 hectolitres = 1 kilolitre

**PRESSURE AND STRESS**

1000 micropascals = 1 millipascal
1000 millipascals = 1 pascal
100 pascals = 1 millibar
1000 pascals = 1 kilopascal
10 millibars = 1 kilopascal
1000 kilopascals = 1 megapascal
1000 megapascals = 1 gigapascal

**DENSITY & CONCENTRATION**

1 gram per cu metre = 1 milligram per cu decimetre
1000 milligrams per cu decimetre = 1 kilogram per cu metre
1000 kilograms = 1 tonne per cu metre
per metre = 1 kilogram per cu decimetre

**FORCE**

1000 micronewtons = 1 micronewton
1000 millinewtons = 1 newton
1000 newtons = 1 kilonewton
1000 kilonewtons = 1 meganewton