

Metric Prefixes

tera..... T..... $10^{12}$ .....1,000,000,000,000	deci..... d ..... $10^{-1}$ .....0.1
giga..... G..... $10^9$ .....1,000,000,000	centi..... c ..... $10^{-2}$ .....0.01
mega ..... M..... $10^6$ .....1,000,000	milli..... m ..... $10^{-3}$ .....0.001
kilo..... k..... $10^3$ .....1,000	micro ..... $\mu$ ..... $10^{-6}$ .....0.000001
hecto ..... h..... $10^2$ .....100	nano..... n ..... $10^{-9}$ .....0.000000001
deka ..... d..... $10^1$ .....10	pico..... p ..... $10^{-12}$ .....0.000000000001

Conversion Factors

1 Abcoulomb	= 2.998×10 <sup>10</sup>	Statcoulombs	1 B.T.U.	= 1.055×10 <sup>10</sup>	Ergs
1 Acre-foot	= 43,560	Cubic feet		= 778.3	Foot pounds
	= 1233.49	Cubic meters		= 252	Gram calories
	= 325,851	Gallons		= 3.930×10 <sup>-4</sup>	Horsepower hours
1 Acre	= 0.4047	Hectares		= 1054.8	Joules
	= 43,560	Square feet		= 0.252	Kilocalories
	= 4047	Square meters		= 107.5	Kilogram meters
	= 0.001562	Square miles		= 2.928×10 <sup>-4</sup>	Kilowatt hours
	= 4840	Square yards		= 10.409	Liter atmospheres
1 Ampere-hour	= 3,600	Coulombs	1 B.T.U./hour	= 0.2162	Foot pounds/second
	= 0.03731	Faradays		= 0.070	Gram cal./second
1 Ampere-turn	= 1.257	Gilberts		= 3.930×10 <sup>-4</sup>	Horsepower
1 Angstrom	= 3.937×10 <sup>-9</sup>	Inches	1 B.T.U./min.	= 12.96	Foot pounds/second
	= 10 <sup>-10</sup>	Meters		= 0.02356	Horsepower
1 Are	= 0.02471	Acres		= 0.01757	Kilowatts
	= 100	Square meters		= 17.57	Watts
1 Astronomical unit	= 1.495×10 <sup>8</sup>	Kilometers	1 B.T.U./sq. ft/min.	= 0.1221	Watts/sq. inch
1 Atmosphere	= 1.01325	Bars	1 Bucket (Br. Dry)	= 18.18	Liters
	= 76.0	cm of mercury	1 Bushel	= 1.2445	Cubic feet
	= 33.90	Feet of water		= 2150.4	Cubic inches
	= 29.92	Inches of mercury		= 0.03524	Cubic meters
	= 10,333	Kilograms/sq. meter		= 35.24	Liters
	= 101.325	Kilopascals		= 4	Pecks
	= 101,325	Pascals		= 64	Pints (dry)
	= 14.70	Pounds / sq. inch		= 32	Quarts (dry)
	= 1.058	Tons / sq. foot			
1 Bag (cement)	= 94	Pounds	1 Calorie (gram)	= 0.003968	B.T.U.
1 Barrel (cement)	= 376	Pounds		= 10 <sup>-3</sup>	Calories (kg)
1 Barrel (dry)	= 7056	Cubic inches		= 41,868,000	Ergs
1 Barrel (liquid)	= 105	Quarts (dry)		= 10 <sup>-3</sup>	Food calories
1 Barrel (oil)	= 42	Gallons		= 3.0880	Foot pounds
1 Bar	= 0.9869	Atmospheres		= 1.5596×10 <sup>-6</sup>	Horsepower hours
	= 10 <sup>6</sup>	Dynes/sq. cm		= 10 <sup>-3</sup>	Kilocalories
	= 10,200	Kilograms/sq. meter		= 1.1630×10 <sup>-6</sup>	Kilowatt hours
	= 10 <sup>2</sup>	Kilopascals	1 Calorie (kg)	= 3.968	B.T.U.
	= 10 <sup>5</sup>	Pascals		= 10 <sup>3</sup>	Calories (gram)
	= 14.50	Pounds/sq. inch	1 Calorie (kg)	= 1	Food calorie
1 Baryl	= 1	Dyne/sq. cm		= 1	Kilocalorie
1 Board foot	= 144	Cubic inches	1 Candle/sq. cm	= 3.142	Lamberts
1 Bolt (US cloth)	= 40	Yards	1 Candle/sq. in.	= 0.4870	Lamberts
			1 Centare	= 1	Sq. meter
			1 Centigram	= 10 <sup>-2</sup>	Grams
			1 Centiliter	= 10 <sup>-2</sup>	Liters
			1 Centimeter dyne	= 0.00102	Centimeter grams
				= 1.020×10 <sup>-8</sup>	Meter kilograms
				= 7.376×10 <sup>-8</sup>	Pound feet

1 Centimeter gram	= 980.7	Centimeter dynes	1 Cubic meter	= 28.38	Bushels (dry)
	= $10^{-5}$	Meter kilograms		= $10^6$	Cubic centimeters
	= $7.233 \times 10^{-5}$	Pound feet		= 35.31	Cubic feet
1 Centimeter	= 0.03281	Feet		= 61,023	Cubic inches
	= 0.3937	Inches		= 1.308	Cubic yards
	= $10^{-2}$	Meters		= 264.2	Gallons
	= 10	Millimeters		= $10^3$	Liters
	= 393.7	Mils		= 2113	Pints (liquid)
1 cm of mercury	= 0.01316	Atmospheres		= 1057	Quarts (liquid)
	= 0.4461	Feet of water	1 Cubic yard	= 764,600	Cubic centimeters
	= 136.0	kg/sq. meter		= 27	Cubic feet
	= 27.85	Pounds/sq. foot		= 46,656	Cubic inches
	= 0.1934	Pounds/sq. inch		= 0.7646	Cubic meters
1 cm/second	= 1.969	Feet/minute		= 202	Gallons
	= 0.03281	Feet/second		= 764.6	Liters
	= 0.036	km/hour		= 1616	Pints (liquid)
	= 0.6	Meters/minute		= 807.9	Quarts (liquid)
	= 0.02237	Miles/hour	1 Cubic yard/min.	= 0.45	Cubic feet/second
	= $3.728 \times 10^{-4}$	Miles/minute		= 3.367	Gallons/second
1 cm/s/s	= 0.03281	Feet/s/s		= 12.74	Liters/second
1 Chain	= 792	Inches	1 Cycle/second	= 1	Hertz
	= 20.12	Meters			
	= 22	Yards	1 Day	= 86,400	Seconds
1 Circular mil	= $5.067 \times 10^{-6}$	Square centimeters	1 Decigram	= 0.1	Grams
	= 0.7854	Square mils	1 Deciliter	= 0.1	Liters
	= $7.854 \times 10^{-7}$	Square inches	1 Decimeter	= 0.1	Meters
Circumference	= 6.2832	Radians	1 Degree (angle)	= 60	Minutes
1 Cord foot	= 16	Cubic feet		= 0.01111	Quadrants
1 Cord	= 8	Cord feet		= 0.01745	Radians
1 Coulomb	= $1.036 \times 10^{-5}$	Faradays		= 3600	Seconds
	= $2.998 \times 10^9$	Statcoulombs	1 Deg./second (angle)	= 0.01745	Radians/second
1 Coulomb/sq. cm	= 64.52	Coulombs/sq. inch		= 0.1667	Revolutions/minute
1 Coulomb/sq. in.	= 0.1550	Coulombs/sq. cm		= 0.002778	Revolutions/second
1 Cubic cm	= $3.531 \times 10^{-5}$	Cubic feet	1 Dekagram	= 10	Grams
	= 0.06102	Cubic inches	1 Dekaliter	= 10	Liters
	= $10^{-6}$	Cubic meters	1 Dekameter	= 10	Meters
	= $1.308 \times 10^{-6}$	Cubic yards	1 Dram	= 27.34375	Grains
	= $2.642 \times 10^{-4}$	Gallons		= 1.771845	Grams
	= $10^{-3}$	Liters		= 0.0625	Ounces
	= 0.002113	Pints (liquid)	1 Dram (troy)	= 0.1371429	Ounces
	= 0.001057	Quarts (liquid)		= 0.125	Ounces (troy)
1 Cubic foot	= 0.8036	Bushels (dry)	1 Dyne centimeter	= 1	Erg
	= 28,320	Cubic centimeters	1 Dyne	= 1	Gram cm/s <sup>2</sup>
	= 1728	Cubic inches		= $10^{-7}$	Joules/cm
	= 0.03704	Cubic yards		= $1.020 \times 10^{-6}$	Kilograms
	= 7.48052	Gallons		= $10^{-5}$	Newtons
	= 28.32	Liters		= $7.233 \times 10^{-5}$	Poundals
	= 59.84	Pints (liquid)		= $2.248 \times 10^{-6}$	Pounds
	= 62.43	Pounds of water	1 Dyne/cm	= $10^{-2}$	Ergs/sq. mm
	= 29.92	Quarts (liquid)	1 Dyne/sq. cm	= $9.869 \times 10^{-7}$	Atmospheres
1 Cubic ft./min.	= 472	Cubic cm/second		= $10^{-6}$	Bars
	= 0.1247	Gallons/second			
	= 0.4720	Liters/second	1 Em (Pica)	= 0.167	Inches
	= 62.143	Pounds of water/min.		= 0.4233	Centimeters
1 Cubic ft./second	= 0.646317	Millions of gal./day	1 Erg	= $9.480 \times 10^{-11}$	B.T.U.
	= 448.831	Gallons/minute		= $2.389 \times 10^{-8}$	Calories (gram)
1 Cubic inch	= 16.39	Cubic centimeters		= 1	Dyne cm
	= $1.639 \times 10^{-5}$	Cubic meters		= $7.367 \times 10^{-8}$	Foot pounds
	= $2.143 \times 10^{-5}$	Cubic yards		= 0.00102	Gram centimeters
	= 0.004329	Gallons		= $3.7250 \times 10^{-14}$	Horsepower hours
	= 0.01639	Liters		= $10^{-7}$	Joules
	= 106,100	Mil feet		= $2.389 \times 10^{-11}$	Kilocalories
	= 0.03463	Pints (liquid)		= $1.020 \times 10^{-8}$	Kilogram meters
	= 0.01732	Quarts (liquid)		= $2.778 \times 10^{-14}$	Kilowatt hours
				= $2.778 \times 10^{-11}$	Watt hours

1 Erg/second	= 5.688×10 <sup>-9</sup>	B.T.U./minute	g (accel. of gravity)	= 32.17	feet/second/second
	= 1	Dyne cm/second		= 9.807	meters/second/second
	= 4.427×10 <sup>-6</sup>	Foot pounds/minute	1 Gallon	= 3785	Cubic centimeters
	= 7.3756×10 <sup>-8</sup>	Foot pounds/second		= 0.1337	Cubic feet
	= 1.341×10 <sup>-10</sup>	Horsepower		= 231.0	Cubic inches
	= 1.433×10 <sup>-9</sup>	Kilocalories/minute		= 0.003785	Cubic meters
				= 0.004951	Cubic yards
1 Faraday	= 26.80	Ampere hours		= 0.83267	Gallons (Imperial)
	= 96,490	Coulombs		= 3.785	Liters
1 Faraday/second	= 96,490	Amperes		= 8	Pints (liquid)
1 Farad	= 10 <sup>6</sup>	Microfarads		= 8.3453	Pounds of water
1 Fathom	= 6	Feet		= 4	Quarts (liquid)
	= 1.8288	Meters	1 Gallon (Imperial)	= 1.20095	Gallons
1 Foot	= 30.48	Centimeters	1 Gallon/min.	= 8.0208	Cubic feet/hour
	= 12	Inches		= 0.002228	Cubic feet/second
	= 3.048×10 <sup>-4</sup>	Kilometers		= 0.06308	Liters/second
	= 0.3048	Meters		= 6.0086	Tons water/day
	= 1.894×10 <sup>-4</sup>	Miles	1 Gauss	= 6.452	Lines/sq. inch
	= 1.645×10 <sup>-4</sup>	Nautical miles		= 10 <sup>-8</sup>	Webers/sq. cm
	= 304.8	Millimeters		= 6.452×10 <sup>-8</sup>	Webers/sq. in.
	= 0.3333	Yards		= 10 <sup>-4</sup>	Webers/sq. meter
1 Foot of water	= 0.02950	Atmospheres	1 Gilbert	= 0.7958	Ampere turns
	= 0.8826	Inches of mercury	1 Gilbert/cm	= 0.7958	Ampere turns/cm
	= 0.03048	Kilograms/square cm		= 2.021	Ampere turns/in.
	= 62.43	Pounds/square foot		= 79.58	Ampere turns/meter
	= 0.4335	Pounds/square inch	1 Gill	= 0.1183	Liters
1 Foot /minute	= 0.5080	Centimeters/second		= 0.25	Pints (liquid)
	= 0.01667	Feet/second	1 Gill (Imperial)	= 142.07	Cubic centimeters
	= 0.3048	Meters/minute	1 Grade percentage	= 0.9001	Degrees
	= 0.01136	Miles/hour	1 Grain	= 0.0365714	Drams
1 Foot /second	= 30.48	Centimeters/second		= 0.06480	Grams
	= 1.097	Kilometers/hour		= 0.002083	Ounces (troy)
	= 0.5921	Knots		= 0.04167	Pennyweights (troy)
	= 18.29	Meters/minute	1 Grain (troy)	= 1	Grain
	= 0.6818	Miles/hour	1 Grain/gallon	= 17.118	Parts/million
	= 0.01136	Miles/minute		= 142.86	Pounds/million gal.
1 Foot /second/second	= 30.48	Centimeters/s/s	1 Grain/Imp. gal.	= 14.254	Parts/million
	= 0.3048	Meters/s/s	1 Gram cm	= 9.297×10 <sup>-8</sup>	B.T.U.
	= 1.097	Kilometers/h/s		= 980.7	Ergs
	= 0.6818	Miles/h/s		= 2.343×10 <sup>-8</sup>	Kilocalories
1 Foot candle	= 10.764	Lumens/sq. meter		= 10 <sup>-5</sup>	Kilogram meters
1 Foot pound	= 0.001286	B.T.U.	1 Gram cm/s <sup>2</sup>	= 1	Dyne
	= 13,560,000	Ergs	1 Gram	= 980.7	Dynes
	= 0.3238	Gram calories		= 15.43	Grains
	= 1.356	Joules		= 10 <sup>-3</sup>	Kilograms
	= 5.050×10 <sup>-7</sup>	Horsepower hours		= 10 <sup>3</sup>	Milligrams
	= 3.241×10 <sup>-4</sup>	Kilocalories		= 0.03527	Ounces
	= 0.1383	Kilogram meters		= 0.03215	Ounces (troy)
	= 3.766×10 <sup>-7</sup>	Kilowatt hours		= 0.07093	Poundals
1 Foot pound/min.	= 0.001286	B.T.U./minute		= 0.002205	Pounds
	= 0.01667	Foot pounds/second	1 Gram/cm	= 0.005600	Pounds/inch
	= 3.030×10 <sup>-5</sup>	Horsepower	1 Gram/cu. cm	= 62.43	Pounds/cu. foot
	= 3.241×10 <sup>-4</sup>	Kilocalories/min.		= 0.03613	Pounds/cu. inch
	= 2.260×10 <sup>-5</sup>	Kilowatts	1 Gram/liter	= 58.417	Grains/gallon
1 Foot pound/second	= 0.07717	B.T.U./minute		= 8.345	Pounds/1000 gallons
	= 0.001818	Horsepower		= 0.062427	Pounds/cu. foot
	= 0.01945	Kilocalories/minute		= 10 <sup>3</sup>	Parts/million
	= 0.001356	Kilowatts	1 Gram/sq. cm	= 2.0481	Pounds/sq. foot
	= 4.6263	B.T.U./hour			
1 Furlong	= 660	Feet	1 Hand	= 4	Inches
	= 0.125	Miles	1 Hectare	= 2.471	Acres
	= 40	Rods		= 10 <sup>5</sup>	Square meters
			1 Hectare	= 107,600	Square feet
			1 Hectogram	= 10 <sup>2</sup>	Grams

1 Hectoliter	= 10 <sup>2</sup>	Liters	1 Kilocalorie	= 3.968	B.T.U.
1 Hectometer	= 10 <sup>2</sup>	Meters		= 1	Food calorie
1 Hectowatt	= 10 <sup>2</sup>	Watts		= 3086	Foot pounds
1 Hertz	= 1	Cycle/second		= 10 <sup>3</sup>	Gram calories
1 Hogshead	= 8.42184	Cubic feet		= 0.001558	Horsepower hours
	= 63	Gallons		= 4186	Joules
1 Hogshead (Imp.)	= 10.114	Cubic feet		= 1	Kilogram caolorie
1 Horsepower	= 42.44	B.T.U./minute		= 426.9	Kilogram meters
	= 33,000	Foot pounds/min.		= 4.186	Kilojoules
	= 550	Foot pounds/second		= 0.001162	Kilowatt hours
	= 1.014	Horsepower (metric)	1 Kilocalorie/min.	= 51.43	Foot lb./second
	= 10.69	Kilocalories/minute		= 0.09351	Horsepower
	= 0.7457	Kilowatts		= 0.06972	Kilowatts
	= 745.7	Watts	1 Kilogram m/s <sup>2</sup>	= 1	Newton
1 Horsepower (boiler)	= 33,479	B.T.U./hour	1 Kilogram	= 10 <sup>3</sup>	Grams
	= 9.803	Kilowatts		= 70.93	Poundals
1 Horsepower(metric)	= 0.9863	Horsepower		= 2.205	Pounds
1 Horsepower hour	= 2547	B.T.U.		= 0.001102	Tons
	= 641,200	Calories (gram)	1 Kilogram/cu. m	= 10 <sup>-3</sup>	Grams/cu. cm
	= 2.684×10 <sup>13</sup>	Ergs		= 0.06243	Pounds/cu. ft.
	= 1,980,000	Foot pounds		= 3.613×10 <sup>-5</sup>	Pounds/cu. in.
	= 2,684,000	Joules	1 Kilogram/meter	= 0.6720	Pounds/foot
	= 641.2	Kilocalories	1 Kilogram/sq. cm	= 0.9678	Atmospheres
	= 273,700	Kilogram meters		= 980,665	Dynes
	= 0.7457	Kilowatt hours		= 32.81	Feet of water
1 Hundredweight	= 1600	Ounces		= 28.96	Inches of mercury
	= 10 <sup>2</sup>	Pounds		= 2048	Pounds/sq. foot
	= 0.05	Tons		= 14.22	Pounds/sq. inch
	= 0.0446429	Tons (long)	1 Kilogram/sq. m	= 9.678×10 <sup>-5</sup>	Atmospheres
	= 0.0453592	Tons (metric)		= 9.807×10 <sup>-5</sup>	Bars
1 Hundredweight (long)				= 0.003281	Feet of water
	= 112	Pounds		= 0.002896	Inches of mercury
	= 0.05	Tons (long)		= 0.2048	Pounds/sq. foot
				= 0.001422	Pounds/sq. inch
1 Inch	= 2.540	Centimeters	1 Kilogram/sq. mm	= 10 <sup>6</sup>	Kilograms/sq. meter
	= 0.02540	Meters	1 Kiloline	= 10 <sup>3</sup>	Maxwells
	= 25.40	Millimeters	1 Kiloliter	= 10 <sup>3</sup>	Liters
	= 10 <sup>3</sup>	Mils	1 Kilometer	= 10 <sup>5</sup>	Centimeters
	= 0.02778	Yards		= 3281	Feet
1 In. of mercury	= 0.03342	Atmospheres		= 10 <sup>3</sup>	Meters
	= 1.133	Feet of water		= 0.6214	Miles
	= 0.03453	Kilograms/sq. cm		= 1094	Yards
	= 345.3	Kilograms/sq. m	1 Kilometer/hour	= 27.78	Centimeters/second
	= 70.73	Pounds/sq. foot		= 54.68	Feet/minute
	= 0.4912	Pounds/sq. inch		= 0.9113	Feet/second
1 Inch of water	= 0.002458	Atmospheres		= 0.5396	Knots
	= 0.07355	Inches of mercury		= 16.67	Meters/minute
	= 25.40	Kilograms/sq. m		= 0.6214	Miles/hour
	= 0.5781	Ounces/sq. inch	1 Kilometer/h/s	= 27.78	Centimeters/s/s
	= 5.202	Pounds/sq. foot		= 0.9113	Feet/s/s
	= 0.03613	Pounds/sq. inch		= 0.2778	Meters/s/s
			1 Kilonewton	= 224.8	Pounds
1 Joule	= 9.480×10 <sup>-4</sup>	B.T.U.	1 Kilopascal	= 0.1450	Pounds/sq. inch
	= 10 <sup>7</sup>	Ergs	1 Kilowatt hour	= 3415	B.T.U.
	= 0.7376	Foot pounds		= 3.60×10 <sup>13</sup>	Ergs
	= 2.389×10 <sup>-4</sup>	Kilocalories		= 2.655×10 <sup>6</sup>	Foot pounds
	= 0.1020	Kilogram meters		= 1.341	Horsepower hours
	= 1	Newton meter		= 3.6×10 <sup>6</sup>	Joules
	= 2.778×10 <sup>-4</sup>	Watt hours		= 860.5	Kilocalories
				= 367,100	Kilogram meters

1 Kilowatt	= 56.92	B.T.U./minute	1 Meter/second	= 196.8	Feet/minute
	= 44,250	Foot pounds/minute		= 3.281	Feet/second
	= 737.6	Foot pounds/second		= 3.6	Kilometers/hour
	= 1.341	Horsepower		= 0.06	Kilometers/minute
	= 14.34	Kilocalories/minute		= 2.237	Miles/hour
	= $10^3$	Watts		= 0.03728	Miles/minute
1 Kip	= $10^3$	lb.	1 Meter/s/s	= 3.281	Feet/s/s
1 Kip/sq. inch (ksi)	= $10^3$	lb./sq. inch (psi)		= 3.6	Kilometers/h/s
1 Knot	= 1.8532	Kilometers/hour		= 2.237	Miles/h/s
	= 1	Nautical mile/hour	1 Microfarad	= $10^{-6}$	Farads
	= 1.151	Miles/hour	1 Micron	= $10^{-6}$	Meters
	= 1.689	Feet/second	1 Mil foot	= $9.425 \times 10^{-6}$	Cubic inches
			1 Mile	= $1.609 \times 10^5$	Centimeters
1 League	= 3.0	Miles		= 5280	Feet
1 Light year	= $9.4609 \times 10^{12}$	Kilometers		= 63,360	Inches
	= $5.9 \times 10^{12}$	Miles		= 1.609	Kilometers
1 Line/sq. cm	= 1	Gauss		= 0.8684	Nautical miles
1 Line/sq. inch	= 0.1550	Gausses		= 1760	Yards
	= $1.550 \times 10^{-9}$	Webers/sq. cm	1 Mile (nautical)	= 6080.27	Feet
	= $10^{-8}$	Webers/sq. inch		= 1.853	Kilometers
1 Link (engineer's)	= 12	Inches		= 1853	Meters
1 Link (surveyor's)	= 7.92	Inches		= 1.1516	Miles
1 Liter	= $10^3$	Cubic centimeters		= 2027	Yards
	= 0.03531	Cubic feet	1 Mile/hour	= 44.70	Centimeters/second
	= 61.02	Cubic inches		= 88	Feet/minute
	= $10^{-3}$	Cubic meters		= 1.467	Feet/second
	= 0.001308	Cubic yards		= 1.609	Kilometers/hour
	= 0.2642	Gallons		= 0.8684	Knots
	= 1.000	Kilogram of water		= 26.82	Meters/minute
	= 2.113	Pints (liquid)		= 0.1667	Miles/minute
	= 1.057	Quarts (liquid)	1 Mile/h/s	= 44.70	Centimeters/s/s
1 Liter/minute	= $5.886 \times 10^{-4}$	Cubic feet/second		= 1.467	Feet/s/s
	= 0.004403	Gallons/second		= 1.609	Kilometers/h/s
1 Lumen	= 0.07958	Spher. candle power		= 0.4470	Meters/s/s
	= 0.001496	Watts	1 Mile/minute	= 2682	Centimeters/second
1 Lumen/sq. foot	= 1	Foot candle		= 88	Feet/second
	= 10.76	Lumens/sq. meter		= 1.609	Kilometers/minute
1 Lux	= 0.0929	Foot candles		= 60	Miles/hour
			1 Millier	= $10^3$	Kilograms
1 Maxwell	= $10^{-3}$	Kilolines	1 Milligram	= 0.01543	Grains
	= $10^{-8}$	Webers		= $10^{-3}$	Grams
1 Megaline	= $10^6$	Maxwells	1 Milligram/liter	= 1	Part per million
1 Megapascal	= 145	Pounds/sq. inch	1 Milliliter	= $10^{-3}$	Liters
1 Meter kilogram	= $9.807 \times 10^7$	Centimeter dynes	1 Millimeter	= 0.1	Centimeters
	= $10^5$	Centimeter grams		= 0.03937	Inches
	= 7.233	Pound feet		= 0.003281	Feet
1 Meter	= $10^2$	Centimeters		= 39.37	Mils
	= 3.281	Feet	1 Millimicron	= $10^{-9}$	Meters
	= 39.37	Inches	1 Million gallons/day	= 1.54723	Cubic feet/second
	= $10^{-3}$	Kilometers	1 Mil	= 0.00254	Centimeters
	= $6.214 \times 10^{-4}$	Miles		= $10^{-3}$	Inches
	= $5.396 \times 10^{-4}$	Nautical miles	1 Miner's inch	= 1.5	Cubic feet/minute
	= $10^3$	Millimeters	1 Minim	= 0.061612	Cubic centimeters
	= 1.094	Yards	1 Minim (Imp.)	= 0.059192	Cubic centimeters
1 Meter/minute	= 1.667	Centimeters/second	1 Minute (angle)	= 0.01667	Degrees
	= 0.03238	Knots		= $1.852 \times 10^{-4}$	Quadrants
	= 3.281	Feet/minute		= $2.909 \times 10^{-4}$	Radians
	= 0.05468	Feet/second		= 60	Seconds
	= 0.06	Kilometers/hour			
	= 0.03728	Miles/hour	1 Neper	= 8.686	Decibels
			1 Newton meter	= 1	Joule
			1 Newton	= $10^5$	Dynes
				= 1	Kilogram meters/s <sup>2</sup>
				= 0.2248	Pounds

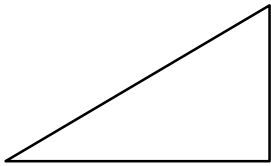
1 Newton/sq. meter	= 1	Pascal	1 Pound	= 256	Drams
				= $4.44823 \times 10^5$	Dynes
1 Ounce	= 16	Drams		= 7000	Grains
	= 437.5	Grains		= 453.5924	Grams
	= 28.349527	Grams		= 0.04448	Joules/centimeter
	= 0.9115	Ounces (troy)		= 0.4536	Kilograms
	= 0.0625	Pounds		= $10^{-3}$	Kips
	= $2.790 \times 10^{-5}$	Tons (long)		= 0.004448	Kilonewtons
	= $2.835 \times 10^{-5}$	Tons (metric)		= 4.448	Newtons
1 Ounce (fluid)	= 1.805	Cubic inches		= 16	Ounces
	= 0.02957	Liters		= 14.5833	Ounces (troy)
1 Ounce (troy)	= 480	Grains		= 32.17	Poundals
	= 31.103481	Grams		= 1.21528	Pounds (troy)
	= 1.09714	Ounces	1 Pound (troy)	= 5760	Grains
	= 20	Pennyweights (troy)		= 373.24177	Grams
	= 0.08333	Pounds (troy)		= 13.1657	Ounces
1 Ounce/sq. inch	= 0.0625	Pounds/sq. inch		= 12	Ounces (troy)
				= 240	Pennyweights (troy)
1 Part/million	= 0.0584	Grains/gallon		= 0.822857	Pounds
	= 0.07016	Grains/Imp. Gallon		= $4.1143 \times 10^{-4}$	Tons
	= 8.345	Pounds/million gal.		= $3.6735 \times 10^{-4}$	Tons (long)
1 Pascal	= $9.869 \times 10^{-6}$	Atmospheres		= $3.7324 \times 10^{-4}$	Tons (metric)
	= $10^{-5}$	Bars	1 Pound of water	= 0.01602	Cubic feet
	= 1	Newton/sq. meter		= 27.68	Cubic inches
	= $1.450 \times 10^{-4}$	Pounds/sq. inch		= 0.1198	Gallons
1 Peck	= 0.25	Bushels	1 Pound water/min.	= $2.670 \times 10^{-4}$	Cubic feet/second
	= 537.605	Cubic inches	1 Pound/cubic ft.	= 0.01602	Grams/cubic cm
	= 8.810	Liters		= 16.02	Kilograms/cu. meter
	= 8	Quarts (dry)		= $5.787 \times 10^{-4}$	Pounds/cu. inch
1 Pennywt. (troy)	= 24	Grains	1 Pound/cubic in.	= 27.68	Grams/cu. cm
	= 1.55517	Grams		= $2.768 \times 10^4$	Kilograms/cu. meter
	= 0.05	Ounces (troy)		= 1728	Pounds/cu. foot
	= 0.004167	Pounds (troy)	1 Pound/foot	= 1.488	Kilograms/meter
1 Pint (dry)	= 33.60	Cubic inches	1 Pound/inch	= 178.6	Grams/centimeter
1 Pint (liquid)	= 473.2	Cubic centimeters	1 Pound/sq. foot	= 0.01602	Feet of water
	= 0.01671	Cubic feet		= 4.883	Kilograms/sq. meter
	= 28.87	Cubic inches		= 0.006945	Pounds/sq. inch
	= $6.189 \times 10^{-4}$	Cubic yards	1 Pound/sq. inch (psi)	= 0.06804	Atmospheres
	= 0.125	Gallons		= 0.06895	Bars
	= 0.4732	Liters		= 2.307	Feet of water
	= 0.5	Quarts (liquid)		= 2.036	Inches of mercury
1 Poise	= 1	Gram/cm/s		= 703.1	Kilograms/sq. meter
1 Pound foot	= $1.356 \times 10^7$	Centimeter dynes		= 6.897	Kilopascals
	= $1.3825 \times 10^5$	Centimeter grams		= $10^{-3}$	Kips/sq. inch (ksi)
	= 0.1383	Meter kilograms		= $6.897 \times 10^{-3}$	Megapascals (MPa)
1 Poundal	= $1.3826 \times 10^4$	Dynes		= 6897	Pascals (Pa)
	= 14.10	Grams			
	= 0.001383	Joules/centimeter	1 Quadrant (angle)	= 90	Degrees
	= 0.1383	Joules/meter		= 5400	Minutes
	= 0.01410	Kilograms		= 1.571	Radians
	= 0.1383	Newtons	1 Quart (dry)	= 67.20	Cubic inches
	= 0.03108	Pounds		= 1.164	Quarts (liquid)
	= 0.0005	Tons	1 Quart (liquid)	= 946.4	Cubic centimeters
				= 0.03342	Cubic feet
				= 57.75	Cubic inches
				= $9.464 \times 10^{-4}$	Cubic meters
				= 0.25	Gallons
				= 0.9463	Liters
				= 0.8594	Quarts (dry)
			1 Quintal	= 100	Kilograms
				= 220.5	Pounds
			1 Quintal (Argent.)	= 101.28	Pounds
			1 Quintal (Brazilian)	= 129.54	Pounds
			1 Quintal (Peruvian)	= 101.43	Pounds
			1 Quintal (Chilean)	= 101.41	Pounds

1 Quintal (Mexican)	= 101.47	Pounds	1 Square mile	= 640	Acres
1 Quire	= 25	Sheets		= $2.78784 \times 10^7$	Square feet
				= 2.590	Square kilometers
1 Radian	= 57.30	Degrees		= $3.0976 \times 10^6$	Square yards
	= 3438	Minutes	1 Square millimeter	= 1973	Circular mils
	= 0.6366	Quadrants		= $10^{-2}$	Square centimeters
1 Radian/second	= 57.30	Degrees/second		= 0.00155	Square inches
	= 9.549	Revolutions/minute	1 Square mil	= 1.273	Circular mils
	= 0.1592	Revolutions/second	1 Square yard	= 9	Square feet
1 Radian/s/s	= 573	Rev./min./min.		= 1296	Square inches
	= 0.1592	Rev./s/s		= 0.8361	Square meters
1 Ream	= 500	Sheets		= $3.228 \times 10^{-7}$	Square miles
1 Revolution	= 360	Degrees	1 Tesla	= 1	Weber/sq. meter
	= 4	Quadrants	1 Ton	= 907.18486	Kilograms
	= 6.283	Radians		= $32 \times 10^3$	Ounces
1 Revolution/min.	= 6	Degrees/second		= 29167	Ounces (troy)
	= 0.1047	Radians/second		= 2000	Pounds
	= 0.01667	Revolutions/second		= 2430.56	Pounds (troy)
1 Rev./min./min.	= 0.001745	Radians/s/s		= 0.89286	Tons (long)
	= $2.778 \times 10^4$	Revolutions/s/s		= 0.90718	Tons (metric)
1 Revolution/s	= 360	Degrees/second	1 Ton (long)	= 1016	Kilograms
	= 6.283	Radians/second		= 2240	Pounds
1 Revolution/s/s	= 6.283	Radians/s/s		= 1.12	Tons
	= 3600	Rev./min./min.	1 Ton (metric)	= $10^3$	Kilograms
1 Rod	= 0.25	Chains		= 2205	Pounds
	= 16.5	Feet	1 Ton of water/day	= 1.3349	Cubic feet/hour
	= 5.029	Meters		= 0.16643	Gallons/minute
	= 5.5	Yards		= 83.333	Pounds water/hour
1 Scruple	= 20	Grains	1 Watt hour	= 3.4129	B.T.U.
1 Second (angle)	= $2.778 \times 10^{-4}$	Degrees		= 860.5	Calories (gram)
	= 0.01667	Minutes		= $3.60 \times 10^{10}$	Ergs
	= $3.087 \times 10^{-6}$	Quadrants		= 2655	Foot pounds
	= $4.848 \times 10^{-6}$	Radians		= 0.001341	Horsepower hours
1 Slug	= 14.59	Kilograms		= 0.8605	Kilocalories
	= 32.17	Pounds		= 367.1	Kilogram meters
1 Square cm	= $1.973 \times 10^5$	Circular mils		= $10^{-3}$	Kilowatt hours
	= $1.076 \times 10^{-3}$	Square feet	1 Watt	= 3.4129	B.T.U./hour
	= 0.1550	Square inches		= 0.05692	B.T.U./minute
	= $10^{-4}$	Square meters		= 107	Ergs/second
	= 100	Square millimeters		= 44.26	Foot pounds/minute
1 Square foot	= $2.296 \times 10^{-5}$	Acres		= 0.7376	Foot pounds/second
	= 929	Square centimeters		= 0.001341	Horsepower
	= 144	Square inches		= 0.001360	Horsepower (metric)
	= 0.0929	Square meters		= 0.01434	Kilocalories/minute
	= $3.587 \times 10^{-8}$	Square miles		= $10^{-3}$	Kilowatts
	= 0.1111	Square yards	1 Weber	= $10^8$	Maxwells
1 Square inch	= $1.273 \times 10^6$	Circular mils	1 Weber/sq. in.	= $1.550 \times 10^7$	Gausses
	= 6.452	Square centimeters		= $10^8$	Lines/sq. inch
	= 0006944	Square feet		= 0.1550	Webers/sq. meter
	= 645.2	Square millimeters		= 1550	Webers/sq. meter
	= $10^6$	Square mils	1 Weber/sq. meter	= $10^4$	Gausses
1 Square kilometer	= 247.1	Acres		= 64520	Lines/sq. in.
	= $1.076 \times 10^7$	Square feet		= 1	Tesla
	= $10^6$	Square meters		= $10^{-4}$	Webers/sq. cm
	= 0.3861	Square miles		= $6.452 \times 10^{-4}$	Webers/sq. inch
	= $1.196 \times 10^6$	Square yards			
1 Square meter	= $2.471 \times 10^{-4}$	Acres	1 Yard	= 91.44	Centimeters
	= 10.76	Square feet		= 3	Feet
	= $3.861 \times 10^{-7}$	Square miles		= 36	Inches
	= 1.196	Square yards		= $9.114 \times 10^{-4}$	Kilometers
				= 0.9144	Meters
				= $5.682 \times 10^{-4}$	Miles
				= $4.934 \times 10^{-4}$	Miles (nautical)

Temperature Conversions

$$\begin{aligned}
 (^\circ\text{C} \times 9/5) + 32 &= ^\circ\text{F} & ^\circ\text{C} + 273.15 &= \text{K} & ^\circ\text{F} + 459.67 &= ^\circ\text{R} \\
 (^\circ\text{F} - 32) \times 5/9 &= ^\circ\text{C} & \text{K} - 273.15 &= ^\circ\text{C} & ^\circ\text{R} - 459.67 &= ^\circ\text{F}
 \end{aligned}$$

Trigonometry Functions

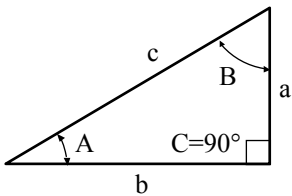


$$\sin A = \text{Side} \div \text{Hypotenuse}$$

$$\cos A = \text{Base} \div \text{Hypotenuse}$$

$$\tan A = \text{Side} \div \text{Base}$$

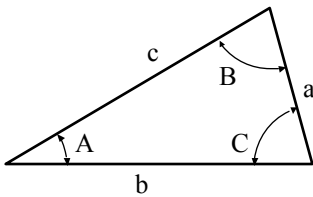
Right triangles



Knowns	Unknown sides & angles			Area
a and b	$c = \sqrt{a^2 + b^2}$	$A = \arctan \frac{a}{b}$	$B = \arctan \frac{b}{a}$	$\frac{a b}{2}$
a and c	$b = \sqrt{c^2 - a^2}$	$A = \arcsin \frac{a}{c}$	$B = \arccos \frac{a}{c}$	$\frac{a\sqrt{c^2 - a^2}}{2}$
b and c	$a = \sqrt{c^2 - b^2}$	$A = \arccos \frac{b}{c}$	$B = \arcsin \frac{b}{c}$	$\frac{b\sqrt{c^2 - b^2}}{2}$
a and $\angle A$	$b = \frac{a}{\tan A}$	$c = \frac{a}{\sin A}$	$B = 90^\circ - A$	$\frac{a^2}{2 \tan A}$
a and $\angle B$	$b = a \tan B$	$c = \frac{a}{\cos B}$	$A = 90^\circ - B$	$\frac{a^2 \tan B}{2}$
b and $\angle A$	$a = b \tan A$	$c = \frac{b}{\cos A}$	$B = 90^\circ - A$	$\frac{b^2 \tan A}{2}$
b and $\angle B$	$a = \frac{b}{\tan B}$	$c = \frac{b}{\sin B}$	$A = 90^\circ - B$	$\frac{b^2}{2 \tan B}$
c and $\angle A$	$a = c \sin A$	$b = c \cos A$	$B = 90^\circ - A$	$c^2 \sin A \cos A$
c and $\angle B$	$a = c \cos B$	$b = c \sin B$	$A = 90^\circ - B$	$c^2 \sin B \cos B$



Oblique triangles



Knowns	Unknown sides & angles			Area
All 3 sides a, b, c	$A = \arccos \frac{b^2 + c^2 - a^2}{2bc}$	$B = \arcsin \frac{b \sin A}{a}$	$C = 180^\circ - A - B$	$\frac{a b \sin C}{2}$
Two sides and the angle between them a, b, $\angle C$	$c = \sqrt{a^2 + b^2 - 2ab \cos C}$	$A = \arctan \frac{a \sin C}{b - a \cos C}$	$B = 180^\circ - A - C$	$\frac{a b \sin C}{2}$
Two sides and the angle opposite one of the sides a, b, $\angle A$ ( $\angle B$ less than $90^\circ$ )	$B = \arcsin \frac{b \sin A}{a}$	$C = 180^\circ - A - B$	$c = \frac{a \sin C}{\sin A}$	$\frac{a b \sin C}{2}$
Two sides and the angle opposite one of the sides a, b, $\angle A$ ( $\angle B$ greater than $90^\circ$ )	$B = 180^\circ - \arcsin \frac{b \sin A}{a}$	$C = 180^\circ - A - B$	$c = \frac{a \sin C}{\sin A}$	$\frac{a b \sin C}{2}$
One side and two angles a, $\angle A$ , $\angle B$	$b = \frac{a \sin B}{\sin A}$	$C = 180^\circ - A - B$	$c = \frac{a \sin C}{\sin A}$	$\frac{a b \sin C}{2}$