

# CONVERSION CHARTS

**English measures** – unless otherwise designated, are those used in the United States.

**Gallon** – designates the U.S. gallon. To convert into the Imperial gallon, multiply the U.S. gallon by 0.83267. Likewise, the word ton designates a short ton, 2,000 pounds.

**Properties of water** – it freezes at 32°F., and is at its maximum density at 39.2°F. In the multipliers using the properties of water, calculations are based on water at 39.2°F. in a vacuum, weighing 62.427 pounds per cubic foot, or 8.345 pounds per U.S. gallon.

Multiply	By	To Obtain
Acres	43,560	Square feet
Acres	4047	Square meters
Acres	1.562 x 10 <sup>3</sup>	Square miles
Acres	4840	Square yards
Atmospheres	76.0	Cms. of mercury
Atmospheres	29.92	Inches of mercury
Atmospheres	33.90	Feet of water
Atmospheres	10,332	Kgs./sq. meter
Atmospheres	14.70	Lbs./sq. inch
Atmospheres	1.058	Tons/sq. ft.
Barrels-Oil	42	Gallons-Oil
Barrels-Beer	31	Gallons-Beer
Barrels-Whiskey	45	Gallons-Whiskey
Barrels/Day-Oil	0.02917	Gallons/Min-Oil
Bags or sacks-cement	94	Pounds-cement
Board feet	144 sq. in. x 1 in.	Cubic inches
B.T.U./min.	12.96	Foot-lbs./sec.
B.T.U./min.	0.02356	Horsepower
B.T.U./min.	0.01757	Kilowatts
B.T.U./min.	17.57	Watts
Centimeters	0.3937	Inches
Centimeters	0.01	Meters
Centimeters	10	Millimeters
Cubic feet	2.832 x 10 <sup>4</sup>	Cubic cms.
Cubic feet	1728	Cubic inches
Cubic feet	0.02832	Cubic meters
Cubic feet	0.03704	Cubic yards
Cubic feet	7.48052	Gallons
Cubic feet	28.32	Liters
Cubic feet	59.84	Pints (liq.)
Cubic feet	29.92	Quarts (liq.)
Cubic feet/min.	472.0	Cubic cms./sec.
Cubic feet/min.	0.1247	Gallons/sec.
Cubic feet/min.	0.4719	Liters/sec.
Cubic feet/min.	62.43	Lbs. of water/min.
Cubic feet/sec.	0.646317	Millions gals./day
Cubic feet/sec.	448.831	Gallons/min.
Cubic inches	16.39	Cubic centimeters
Cubic inches	5.787 x 10 <sup>4</sup>	Cubic feet
Cubic inches	1.639 x 10 <sup>6</sup>	Cubic meters
Cubic inches	2.143 x 10 <sup>6</sup>	Cubic yards

Multiply	By	To Obtain
Cubic inches	4.329 x 10 <sup>3</sup>	Gallons
Cubic inches	1.639 x 10 <sup>2</sup>	Liters
Cubic inches	0.03463	Pints (liq.)
Cubic inches	0.01732	Quarts (liq.)
Cubic yards	764,544.86	Cubic centimeters
Cubic yards	27	Cubic feet
Cubic yards	46,656	Cubic inches
Cubic yards	0.7646	Cubic meters
Cubic yards	202.0	Gallons
Cubic yards	764.5	Liters
Cubic yards	1616	Pints (liq.)
Cubic yards	807.9	Quarts (liq.)
Cubic yards/min.	0.45	Cubic feet/sec.
Cubic yards/min.	3.366	Gallons/sec.
Cubic yards/min.	12.74	Liters/sec.
Fathoms	6	Feet
Feet	30.48	Centimeters
Feet	12	Inches
Feet	0.3048	Meters
Feet	1/3	Yards
Feet of water	0.0295	Atmospheres
Feet of water	0.8826	Inches of mercury
Feet of water	304.8	Kgs./sq. meter
Feet of water	62.43	Lbs./Sq. ft.
Feet of water	0.4335	Lbs./sq. inch
Feet/min.	0.5080	Centimeters/sec.
Feet/min.	0.01667	Feet/sec.
Feet/min.	0.01829	Kilometers/hr.
Feet/min.	0.3048	Meters/min.
Feet/min.	0.01136	Miles/hr.
Feet/sec.	30.48	Centimeters/sec.
Feet/sec.	1.097	Kilometers/hr.
Feet/sec.	0.5924	Knots
Feet/sec.	18.29	Meters/min.
Feet/sec.	0.6818	Miles/hr.
Feet/sec.	0.01136	Miles/min.
Feet/sec./sec.	30.48	Cms./sec./sec.
Feet/sec./sec.	0.3048	Meters/sec./sec.
Foot-pounds	1.286 x 10 <sup>3</sup>	British Thermal Units
Foot-pounds	5.050 x 10 <sup>7</sup>	Horsepower-hrs.
Foot-pounds	3.240 x 10 <sup>4</sup>	Kilogram-calories

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Multiply	By	To Obtain
Foot-pounds	0.1383	Kilogram-meters
Foot-pounds	$3.766 \times 10^7$	Kilowatt-hours
Gallons	3785	Cubic centimeters
Gallons	0.1337	Cubic feet
Gallons	231	Cubic inches
Gallons	$3.785 \times 10^3$	Cubic meters
Gallons	$4.951 \times 10^3$	Cubic yards
Gallons	3.785	Liters
Gallons	8	Pints (liq.)
Gallons	4	Quarts (liq.)
Gallons-Imperial	1.20095	U.S. gallons
Gallons-U.S.	0.83267	Imperial gallons
Gallons water	8.345	Pounds of water
Gallons/min.	$2.228 \times 10^3$	Cubic feet/sec.
Gallons/min.	0.06308	Liters/sec.
Gallons/min.	8.0208	Cu. ft./hr.
Gallons/min.	.2271	Meters <sup>3</sup> /hr.
Grains/U.S. gal.	17.118	Parts/million
Grains/U.S. gal.	142.86	Lbs./million gal.
Grains/Imp. gal.	14.254	Parts/million
Grams	15.43	Grains
Grams	.001	Kilograms
Grams	1000	Milligrams
Grams	0.03527	Ounces
Grams	$2.205 \times 10^3$	Pounds
Horsepower	42.44	B.T.U./min.
Horsepower	33,000	Foot-lbs./min.
Horsepower	550	Foot-lbs./sec.
Horsepower	1.014	Horsepower (metric)
Horsepower	0.7457	Kilowatts
Horsepower	745.7	Watts
Horsepower (boiler)	33,493	B.T.U./hr.
Horsepower (boiler)	9.809	Kilowatts
Horsepower-hours	2546	B.T.U.
Horsepower-hours	$1.98 \times 10^6$	Foot-lbs.
Horsepower-hours	$2.737 \times 10^5$	Kilogram-meters
Horsepower-hours	0.7457	Kilowatt-hours
Inches	2.540	Centimeters
Inches of mercury	0.03342	Atmospheres
Inches of mercury	1.133	Feet of water
Inches of mercury	345.3	Kgs./sq. meter
Inches of mercury	70.73	Lbs./sq. ft.
Inches of mercury (32°F)	0.491	Lbs./sq. inch
Inches of water	0.002458	Atmospheres
Inches of water	0.07355	Inches of mercury
Inches of water	25.40	Kgs./sq. meter
Inches of water	0.578	Ounces/sq. inch
Inches of water	5.202	Lbs. sq. foot
Inches of water	0.03613	Lbs./sq. inch
Kilograms	2.205	Lbs.

Multiply	By	To Obtain
Kilograms	$1.102 \times 10^3$	Tons (short)
Kilograms	$10^3$	Grams
Kiloliters	$10^3$	Liters
Kilometers	$10^5$	Centimeters
Kilometers	3281	Feet
Kilometers	$10^3$	Meters
Kilometers	0.6214	Miles
Kilometers	1094	Yards
Kilometers/hr.	27.78	Centimeters/sec.
Kilometers/hr.	54.68	Feet/min.
Kilometers/hr.	0.9113	Feet/sec.
Kilometers/hr.	.5399	Knots
Kilometers/hr.	16.67	Meters/min.
Kilowatts	56.907	B.T.U./min.
Kilowatts	$4.425 \times 10^4$	Foot-lbs./min.
Kilowatts	737.6	Foot-lbs./sec.
Kilowatts	1.341	Horsepower
Kilowatts	$10^3$	Watts
Kilowatt-hours	3414.4	B.T.U.
Kilowatt-hours	$2.655 \times 10^6$	Foot-lbs.
Kilowatt-hours	1.341	Horsepower-hrs.
Kilowatt-hours	$3.671 \times 10^3$	Kilogram-meters
Liters	$10^3$	Cubic centimeters
Liters	0.03531	Cubic feet
Liters	61.02	Cubic inches
Liters	$10^3$	Cubic meters
Liters	$1.308 \times 10^3$	Cubic yards
Liters	0.2642	Gallons
Liters	2.113	Pints (liq.)
Liters	1.057	Quarts (liq.)
Liters/min.	$5.886 \times 10^4$	Cubic ft./sec.
Liters/min.	$4.403 \times 10^3$	Gals./sec.
Lumber Width (in.) x Thickness (in.) 12	Length (ft.)	Board feet
Meters	100	Centimeters
Meters	3.281	Feet
Meters	39.37	inches
Meters	$10^3$	Kilometers
Meters	$10^3$	Millimeters
Meters	1.094	Yards
Miles	$1.609 \times 10^3$	Centimeters
Miles	5280	Feet
Miles	1.609	Kilometers
Miles	1760	Yards
Miles/hr.	44.70	Centimeters/sec.
Miles/hr.	88	Feet/min.
Miles/hr.	1.467	Feet/sec.
Miles/hr.	1.609	Kilometers/hr.
Miles/hr.	0.8689	Knots

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Multiply	By	To Obtain
Miles/hr.	26.82	Meters/min.
Miles/min.	2682	Centimeters/sec.
Miles/min.	88	Feet/sec.
Miles/min.	1.609	Kilometers/min.
Miles/min.	60	Miles/hr.
Ounces	16	Drams
Ounces	437.5	Grains
Ounces	0.0625	Pounds
Ounces	28.3495	Grams
Ounces	$2.835 \times 10^5$	Tons (metric)
Parts/million	0.0584	Grains/U.S. gal.
Parts/million	0.07015	Grains/Imp. gal.
Parts/million	8.345	Lbs./million gal.
Pounds	16	Ounces
Pounds	256	Drams
Pounds	7000	Grains
Pounds	0.0005	Tons (short)
Pounds	453.5924	Grams
Pounds of water	0.01602	Cubic feet
Pounds of water	27.68	Cubic inches
Pounds of water	0.1198	Gallons
Pounds of water/min.	$2.670 \times 10^4$	Cubic ft./sec.
Pounds/cubic foot	0.01602	Grams/cubic cm.
Pounds/cubic foot	16.02	Kgs./cubic meters
Pounds/cubic foot	$5.787 \times 10^4$	Lbs./cubic inch
Pounds/cubic inch	27.68	Grams/cubic cm.
Pounds/cubic inch	$2.768 \times 10^4$	Kgs./cubic meter
Pounds/cubic inch	1728	Lbs./cubic foot
Pounds/foot	1.488	Kgs./meter
Pounds/inch	1152	Grams/cm.
Pounds/sq. foot	0.01602	Feet of water
Pounds/sq. foot	4.882	Kgs./sq. meter
Pounds/sq. foot	$6.944 \times 10^3$	Pounds/sq. inch
Pounds/sq. inch	0.06804	Atmospheres
PSI	2.307	Feet of water
PSI	2.036	Inches of mercury
PSI	703.1	Kgs./sq. meter
Quarts (dry)	67.20	Cubic inches
Quarts (liq.)	57.75	Cubic inches
Square feet	$2.296 \times 10^5$	Acres
Square feet	929.0	Square centimeters
Square feet	144	Square inches
Square feet	0.09290	Square meters
Square feet	$3.587 \times 10^4$	Square miles
Square feet	1/9	Square yards
$\frac{1}{\text{sq. ft./gal./min.}}$	8.0208	Overflow rate (ft./hr.)
Square inches	6.452	Square centimeters
Square inches	$6.944 \times 10^3$	Square feet
Square inches	645.2	Square millimeters

Multiply	By	To Obtain
Square kilometers	247.1	Acres
Square kilometers	$10.76 \times 10^6$	Square feet
Square kilometers	$10^6$	Square meters
Square kilometers	0.3861	Square miles
Square kilometers	$1.196 \times 10^6$	Square yards
Square meters	$2.471 \times 10^4$	Acres
Square meters	10.76	Square feet
Square meters	$3.861 \times 10^7$	Square miles
Square meters	1.196	Square yards
Square miles	640	Acres
Square miles	$27.88 \times 10^6$	Square feet
Square miles	2.590	Square kilometers
Square miles	$3.098 \times 10^6$	Square yards
Square yards	$2.066 \times 10^4$	Acres
Square yards	9	Square feet
Square yards	0.8361	Square meters
Square yards	$3.228 \times 10^7$	Square miles
Temp. (°C)+273	1	Abs. temp. (°C)
Temp. (°C)+17.78	1.8	Temp. (°F)
Temp. (°F)+460	1	Abs. temp. (°F)
Temp. (°F)-32	5/9	Temp (°C)
Tons (metric)	$10^3$	Kilograms
Tons (metric)	2205	Pounds
Tons (short)	2000	Pounds
Tons (short)	32,000	Ounces
Tons (short)	907.1843	Kilograms
Tons (short)	0.89287	Tons (long)
Tons (short)	0.90718	Tons (metric)
Tons of water/24 hrs.	83.333	Pounds water/hr.
Tons of water/24 hrs.	0.16643	Gallons/min.
Tons of water/24 hrs.	1.3349	Cu. ft./hr.
Watts	0.05686	B.T.U./min.
Watts	44.25	Foot-lbs./min.
Watts	0.7376	Foot-lbs./sec.
Watts	$1.341 \times 10^3$	Horsepower
Watts	0.01434	Kg.-calories/min.
Watts	$10^3$	Kilowatts
Watt-hours	3.414	B.T.U.
Watt-hours	2655	Foot-lbs.
Watt-hours	$1.341 \times 10^3$	Horsepower-hrs.
Watt-hours	0.8604	Kilogram-calories
Watt-hours	367.1	Kilogram-meters
Watt-hours	$10^3$	Kilowatt-hours
Yards	91.44	Centimeters
Yards	3	Feet
Yards	36	Inches
Yards	0.9144	Meters