

## Conversion Factors

To Convert	To	Multiply by
<b>Length</b>		
inches	millimeters	25.4
inches	feet	0.0833
feet	inches	12*
feet	meters	0.3048
feet	yards	0.3333
feet	miles (U.S. statute)	0.0001894
yards	yards	3*
yards	miles (U.S. statute)	0.0005682
miles (U.S. statute)	feet	5280*
miles (U.S. statute)	yards	1760*
miles (U.S. statute)	meters	1609
miles (U.S. statute)	nautical miles	0.868
meters	feet	3.281
meters	yards	1.094
meters	miles (U.S. statute)	0.0006214
nautical miles	miles (U.S. statute)	1.152
<b>Area</b>		
square inches	square centimeters	6.452
square inches	square feet	0.006944
square feet	square inches	144*
square feet	square meters	0.09290
square meters	square feet	10.76
square miles	square yards	3,097,600*

square yards	square feet	9*
<b>Volume</b>		
cubic inches	cubic centimeters	16.39
cubic inches	cubic feet	0.0005787
cubic feet	cubic inches	1728*
cubic feet	cubic meters	0.02832
cubic feet	U.S. gallons	7.481
cubic meters	cubic feet	35.31
liters	quarts (U.S. liquid)	1.057
quarts (U.S. liquid)	liters	0.9463
U.S. gallons	barrels (petroleum)	0.02381
U.S. gallons	cubic feet	0.1337
U.S. gallons	Imperial gallons	0.8327
barrels (petroleum)	U.S. gallons	42*
Imperial gallons	U.S. gallons	1.201
milliliters	cubic centimeters	1*
<b>Time</b>		
seconds	minutes	0.01667
seconds	hours	0.0002778
seconds	days	0.00001157
minutes	seconds	60*
minutes	hours	0.01667
minutes	days	0.0006944
hours	seconds	3600*
hours	minutes	60*
hours	days	0.04167
<b>Mass or Weight</b>		

pounds	kilograms	0.4536
pounds	short tons	0.0005*
pounds	long tons	0.0004464
pounds	metric tons	0.0004536
tons (short)	pounds	2000*
tons (metric)	pounds	2205
tons (long)	pounds	2240*
kilograms	pounds	2.205
tonnes (metric tons)	kilograms	1000*
<b>Energy</b>		
calories	Btu	0.003968
calories	joules	4.187
Btu (British Thermal Units)	calories	252.0
Btu	joules	1055
joules	calories	0.2388
joules	Btu	0.0009479
<b>Velocity</b>		
feet per second	meters per second	0.3048
feet per second	miles per hour	0.6818
feet per second	knots	0.5921
meters per second	feet per second	3.281
meters per second	miles per hour	2.237
miles per hour	meters per second	0.4470
miles per hour	feet per second	1.467
knots	meters per second	0.5148
knots	miles per hour	1.151
knots	feet per second	1.689

<b>Density</b>		
pounds per cubic foot	grams per cubic centimeter	0.01602
grams per cubic centimeter	pounds per cubic foot	62.42
grams per cubic centimeter	kilograms per cubic meter	1000*
kilograms per cubic meter	grams per cubic centimeter	0.001*
<b>Pressure</b>		
pounds per square inch absolute (psia)	kilonewtons per square meter (kN/m <sup>2</sup> )	6.895
psia	atmospheres	0.0680
psia	inches of water	27.67
psia	millimeters of mercury (torr)	51.72
pounds per square inch gauge (psig)	psia	add 14.70
millimeters of mercury (torr)	psia	0.01934
millimeters of mercury (torr)	kN/m <sup>2</sup>	0.1333
inches of water	psia	0.03614
kilograms per square centimeter	millimeters of mercury (torr)	735.6
inches of water	kN/m <sup>2</sup>	0.2491
kilograms per square centimeter	atmospheres	0.9678
atmospheres	kN/m <sup>2</sup>	101.3
kilograms per square centimeter	psia	14.22
atmospheres	psia	14.70
bars	kN/m <sup>2</sup>	100*
kilonewtons per square meter	psia	0.1450
bars	atmospheres	0.9869
kilonewtons per square meter	atmospheres	0.009869
bars	kilograms per square centimeter	1.020
<b>Viscosity</b>		
centipoises	pounds per foot per second	0.0006720

pounds per foot per second	centipoises	1488
centipoises	poises	0.01*
centipoises	newton seconds per square meter	0.001*
poises	grams per centimeter per second	1*
grams per centimeter per second	poises	1*
newton seconds per square meter	centipoises	1000*
<b>Thermal Conductivity</b>		
Btu per hour per foot per °F	watts per meter-kelvin	1.731
Btu per hour per foot per °F	kilocalories per hour per meter per °C	1.488
watts per meter-kelvin	Btu per hour per foot per °F	0.5778
kilocalories per hour per meter per °C	watts per meter-kelvin	1.163
kilocalories per hour per meter per °C	Btu per hour per foot per °F	0.6720
<b>Heat Capacity</b>		
Btu per pound per °F	calories per gram per °C	1*
Btu per pound per °F	joules per kilogram-kelvin	4187
joules per kilogram-kelvin	Btu per pound per °F	0.0002388
calories per gram per °C	Btu per pound per °F	1*
<b>Concentration (in water solution)</b>		
parts per million (ppm)	milligrams per liter	1*
milligrams per liter	ppm	1*
milligrams per cubic meter	grams per cubic centimeter	$1 \times 10^{-9}$
grams per cubic centimeter	milligrams per cubic meter	$1 \times 10^9$
grams per cubic centimeter	pounds per cubic foot	62.42
pounds per cubic foot	grams per cubic centimeter	0.01602
<b>Temperature</b>		
degrees Kelvin (°K)	degrees Rankine (°R)	1.8*
degrees Rankine (°R)	degrees Kelvin (°K)	0.5556

degrees centigrade ( $^{\circ}\text{C}$ )	degrees Fahrenheit ( $^{\circ}\text{F}$ )	first multiply by 1.8, then add 32
degrees Fahrenheit ( $^{\circ}\text{F}$ )	degrees centigrade ( $^{\circ}\text{C}$ )	first subtract 32, then multiply by 0.5556
degrees centigrade ( $^{\circ}\text{C}$ )	degrees Kelvin ( $^{\circ}\text{K}$ )	add 273.2
degrees Fahrenheit ( $^{\circ}\text{F}$ )	degrees Rankine ( $^{\circ}\text{R}$ )	add 459.7
<b>Flow</b>		
cubic feet per second	U.S. gallons per minute	448.9
U.S. gallons per minute	cubic feet per second	0.002228
<b>Universal Gas Constant (R)</b>		
8.314 joules per gram mole-Kelvin		
1.987 calories per gram mole-Kelvin		
1.987 Btu per pound mole per $^{\circ}\text{F}$		
10.73 psia-cubic feet per pound mole per $^{\circ}\text{F}$		
82.057 atm-cubic centimeters per gram mole-Kelvin		
62.361 millimeters mercury liter per gram mole-Kelvin		