

Unit Conversion Table

Standard Prefixes		
Prefix used in code	Prefix for written unit	Multiplier
da-	deka-	10
h-	hecto-	100
k-	kilo-	1000
M-	mega-	1e6
G-	giga-	1e9
T-	tera-	1e12
P-	peta-	1e15
E-	exa-	1e18
Z-	zeta-	1e21
Y-	yotta-	1e24
d-	deci-	1e-1
c-	centi-	1e-2
m-	milli-	1e-3
mu-	micro-	1e-6
n-	nano-	1e-9
p-	pico-	1e-12
f-	femto-	1e-15
a-	atto-	1e-18
z-	zepto-	1e-21
y-	yocto-	1e-24

Standard Units

Unit	Symbol	Definition	Comments
Time			
second	sec	1 s	
minute	min	60 s	
hour	hr	60 min	
hour	hour	1 hr	alternate symbol
hour	h	1 hr	alternate symbol
day	day	24 hr	
shake	shake	10 ns	
Hertz	Hz	1 s ⁻¹	
Length or Distance			
international foot	ft	0.3048 m	
inch	in	1.0/12.0 ft	
international mile	mile	5280.0 ft	
international mile	mi	1 mile	alternate symbol
milli-inch	mil	0.001 in	
Parsec	pc	3.085678e16 m	
League	league	3 mile	
Astronomical Unit	ua	1.49598e11 m	
Astronomical Unit	AU	1.49598e11 m	alternate symbol
yard	yd	3 ft	
Angstrom	Ang	1e-10 m	
Angstrom	\\AA	1 Ang	alternate symbol
furlong	furlong	220 yd	

fathom	fathom	6 ft	
Rod	rd	16.5 ft	
U.S. survey foot	sft	(1200./3937.) m	
U.S. survey mile	smi	5280 sft	also called statue mile
point	pt	1./72. in	Typeface Point
pica	pica	1./6. in	Typeface Pica
Temperature			
Celsius	C	1 K -273.15	
Rankine	R	5.0/9.0 K	
Fahrenheit	F	1 R -459.67	
Mass			
gram	g	0.001 kg	This is case sensitive.
gram	gm	g	(alternate symbol)
pound mass	lbm	0.45359237 kg	(avoirdupois)
Troy pound	lbt	0.3732417 kg	(apothecary)
carat (metric)	carat	0.2 g	
slug	slug	1 lb sec ² /ft	
snail	snail	1 lb sec ² /in	
Short Ton	ton	2000 lbm	
Long Ton	ton_l	2240 lbm	
Ounce	oz	28.34952 g	(avoirdupois)
Grain	gr	64.79891 mg	
Pennyweight	dwt	1.55174 g	
Force or Weight			
Newton	N	1 kg m/s ²	

Dyne	dyn	1e-5 N	
pound force	lb	lbf	
pound force	lbf	lbf	
poundal	poundal	1 lbf ft/sec ²	
kilopound	kip	1000 lbf	
kilogram force	kgf	kg	
Energy			
Joule	J	1 N m	
British Therm. Unit	BTU	1055.056 J	(International Table)
British Therm. Unit	Btu	1 BTU	alternate symbol
British Therm. Unit	BTU_th	1054.350 J	(Thermochemical)
calorie	cal	4.1868 J	(International Table)
calorie	cal_th	4.184 J	(Thermochemical)
Calorie	Cal	4.1868 kJ	(nutritionists)
electron volt	eV	1.602177e-19 J	
erg	erg	1e-7 J	
Ton of TNT	TNT	4.184e9 J	
Power			
Watt	W	1 J/s	
Horse Power	hp	550 ft lbf/s	
Pressure			
bar	bar	1e5 N/m ²	
Pascal	Pa	1 N/m ²	
Pounds per sq. inch	psi	1 lbf/in ²	

Pounds per sq. ft.	psf	1 lb/ft ²	
kilo psi	ksi	1000.0 psi	
atmospheres	atm	1.01325e5 N/m ²	
inches of Mercury	inHg	3.387 kPa	
millimeters Mercury	mmHg	0.1333 kPa	
Torr	torr	1.333224 Pa	
Volume or Area			
Liter	L	1/1000.0 m ³	
gallon	gal	3.785412 L	
Pint (U.S. liquid)	pint	1/8. gal	
Quart (U.S. liquid)	qt	2 pint	
Pint (U.S. dry)	dpint	0.5506105 L	
Quart (U.S. dry)	dqt	2 dpint	
Acre	acre	1/640.0 smi ²	
Hectare	ha	10000 m ²	
Barrel (petroleum)	barrel	158.9873 L	
Fluid Ounce	oz_fl	29.57353 mL	
Gill (U.S.)	gi	0.1182941 L	
Peck (U.S.)	pk	8.809768 L	
Tablespoon	tbl	1/32. pint	
Teaspoon	tsp	1/3. tbl	
Cup	cup	16. tbl	
Electromagnetism			
Coulomb	Co	1 A s	Electric Charge
Volt	V	1 W/A	Electric Potential

Ohm	ohm	1 V/A	Electric Resistance
Ohm	\\Omega	1 V/A	alternate symbol
Faraday	faraday	96485.31 Co	Electric Charge
Farad	farad	Co/V	Capacitance
Stokes	stokes	1e-4 m ² /s	
Oersted	Oe	79.57747 A/m	
Webber	Wb	V s	Magnetic flux
Tesla	Tesla	Wb/m ²	Magnetic flux density
Henry	H	Wb/A	Inductance
Siemens	S	A/V	Electrical Conductance
Light and Radiation			
Lux	lux	cd/m ²	Illuminance
Lux	lx	cd/m ²	
Lumen	lm	cd	Luminous Flux
Stilb	sb	10000 cd/m ²	
Phot	ph	10000 lx	
Becquerel	Bq	s ⁻¹	activity
Gray	Gy	J/kg	Absorbed Dose, kerma
Sievert	Sv	J/kg	Dose equivalent
Other Quantities			
pound mole	lbmole	1 mol lbm/g	quantity
poise	poise	1 g /sec cm	viscosity
Gravity's accel.	G	9.80665 m/sec ²	Gravity on Earth
Degree	deg	Pi/180	Can be used to convert from degrees to radians for trig functions.
Percent	%	0.01	

Knot	knot	1852 m/hr	velocity
Miles per Hour	mph	1 mi/hr	velocity
Gallon/minute	gpm	1. gal/min	flow rate
Revolution/minute	rpm	360 deg/min	

TO CONVERT FROM	DO THIS
Atmospheres to inches of mercury @32°F (Atm to inHg32)	$(\text{atm}) * 29.9213 = (\text{inHg}_{32})$
Atmospheres to inches of mercury @60°F (Atm to inHg60)	$(\text{atm}) * 30.0058 = (\text{inHg}_{60})$
Atmospheres to millibars (atm to mb)	$(\text{atm}) * 1013.25 = (\text{mb})$
Atmospheres to pascals (atm to Pa)	$(\text{atm}) * 101325 = (\text{Pa})$
Atmospheres to pounds/square inch (atm to lb/in²)	$(\text{atm}) * 14.696 = (\text{lb/in}^2)$
Centimeters to feet (cm to ft)	$(\text{cm}) * 0.032808399 = (\text{ft})$
Centimeters to inches (cm to in)	$(\text{cm}) * 0.39370079 = (\text{in})$
Centimeters to meters (cm to m)	$(\text{cm}) * 0.01 = (\text{m})$
Centimeters to millimeters (cm to mm)	$(\text{cm}) * 10 = (\text{mm})$
Degrees to radians (deg to rad)	$(\text{deg}) * 0.01745329 = (\text{rad})$
Degrees Celsius to degrees Fahrenheit (C to F)	$[(\text{C}) * 1.8] + 32 = (\text{F})$
Degrees Celsius to degrees Kelvin (C to K)	$(\text{C}) + 273.15 = (\text{K})$
Degrees Celsius to degrees Rankine (C to R)	$[(\text{C}) * 1.8] + 491.67 = (\text{R})$
Degrees Fahrenheit to degrees Celsius (F to C)	$[(\text{F}) - 32] * 0.555556 = (\text{C})$
Degrees Fahrenheit to degrees Kelvin (F to K)	$[(\text{F}) * 0.555556] + 255.37 = (\text{K})$
Degrees Fahrenheit to degrees Rankine (F to R)	$(\text{F}) + 459.67 = (\text{R})$
Degrees Kelvin to degrees Celsius (K to C)	$(\text{K}) - 273.15 = (\text{C})$
Degrees Kelvin to degrees Fahrenheit (K to F)	$[(\text{K}) - 255.37] * 1.8 = (\text{F})$

Degrees Kelvin to degrees Rankine (K to R)	$(K) * 1.8 = (R)$
Degrees Rankine to degrees Celsius (R to C)	$[(R) - 491.67] * 0.555556 = (C)$
Degrees Rankine to degrees Fahrenheit (R to F)	$(R) - 459.67 = (F)$
Degrees Rankine to degrees Kelvin (R to K)	$(R) * 0.555556 = (K)$
Feet to Centimeters (ft to cm)	$(ft) * 30.48 = (cm)$
Feet to meters (ft to m)	$(ft) * 0.3048 = (ft\ to\ m)$
Feet to miles (ft to mi)	$(ft) * 0.000189393 = (mi)$
Feet/minute to meters/second (ft/min to m/s)	$(ft/min) * 0.00508 = (m/s)$
Feet/minute to miles/hour (ft/min to mph)	$(ft/min) * 0.01136363 = (mph)$
Feet/second to kilometers/hour (ft/s to kph)	$(ft/s) * 1.09728 = (kph)$
Feet/second to knots (ft/s to kt)	$(ft/s) * 0.5924838 = (kt)$
Feet/second to meters/second (ft/s to m/s)	$(ft/s) * 0.3048 = (m/s)$
Feet/second to miles/hour (ft/s to mph)	$(ft/s) * 0.681818 = (mph)$
Grams/cubic centimeter to pounds/cubic foot (gm/cm³ to lb/ft³)	$(gm/cm^3) * 62.427961 = (lb/ft^3)$
Grams/cubic meter to pounds/cubic foot (gm/m³ to lb/ft³)	$(gm/m^3) * 0.000062427961 = (lb/ft^3)$
Hectopascals to millibars (hPa to mb)	Nothing - they are equivalent units
Inches to centimeters (in to cm)	$(in) * 2.54 = (cm)$
Inches to millimeters (in to mm)	$(in) * 25.4 = (mm)$
Inches of mercury @32°F to atmospheres (inHg32 to atm)	$(inHg32) * 0.0334211 = (atm)$
Inches of mercury @32°F to millibars (inHg32 to mb)	$(inHg32) * 33.8639 = (mb)$
Inches of mercury @32°F to pounds/square inch (inHg32 to lb/in²)	$(inHg32) * 0.49115 = (lb/in^2)$
Inches of mercury @60°F to atmospheres (inHg60 to atm)	$(inHg60) * 0.0333269 = (atm)$

Inches of mercury @60°F to millibars (inHg60 to mb)	$(\text{inHg60}) * 33.7685 = (\text{mb})$
Inches of mercury @60°F to pounds/square inch (inHg60 to lb/in²)	$(\text{inHg60}) * 0.48977 = (\text{lb/in}^2)$
Kilograms/cubic meters to pounds/cubic foot (kg/m³ to lb/ft³)	$(\text{kg/m}^3) * 0.062427961 = (\text{lb/ft}^3)$
Kilograms/cubic meters to slugs/cubic foot (kg/m³ to slug/ft³)	$(\text{kg/m}^3) * 0.001940323 = (\text{slug/ft}^3)$
Kilometers to meters (km to m)	$(\text{km}) * 1000 = (\text{m})$
Kilometers to miles (km to mi)	$(\text{km}) * 0.62137119 = (\text{mi})$
Kilometers to nautical miles (km to nmi)	$(\text{km}) * 0.5399568 = (\text{nmi})$
Kilometers/hour to feet/second (kph to ft/s)	$(\text{kph}) * 0.91134 = (\text{ft/s})$
Kilometers/hour to knots (kph to kt)	$(\text{kph}) * 0.5399568 = (\text{kt})$
Kilometers/hour to meters/second (kph to m/s)	$(\text{kph}) * 0.277777 = (\text{m/s})$
Kilometers/hour to miles/hour (kph to mph)	$(\text{kph}) * 0.62137119 = (\text{mph})$
Kilopascals to millibars (kPa to mb)	$(\text{kPa}) * 10 = (\text{mb})$
Knots to feet/second (kt to ft/s)	$(\text{kt}) * 1.6878099 = (\text{ft/s})$
Knots to kilometers/hour (kt to kph)	$(\text{kt}) * 1.852 = (\text{kph})$
Knots to meters/second (kt to m/s)	$(\text{kt}) * 0.514444 = (\text{m/s})$
Knots to miles/hour (kt to mph)	$(\text{kt}) * 1.1507794 = (\text{mph})$
Knots to nautical miles/hour (kt to nmph)	Nothing - they are equivalent units
Langleys/minute to watts/square meter (ly/min to W/m²)	$(\text{ly/min}) * 698.339 = (\text{W/m}^2)$
Watts/square meter to langleys/minute (W/m² to ly/min)	$(\text{W/m}^2) * 0.00143197 = (\text{ly/min})$
Meters to centimeters (m to cm)	$(\text{m}) * 100 = (\text{cm})$
Meters to feet (m to ft)	$(\text{m}) * 3.2808399 = (\text{ft})$
Meters to kilometers (m to km)	$(\text{m}) * 0.001 = (\text{km})$

Meters to miles (m to mi)	(m) * 0.00062137119 = (mi)
Meters/second to feet/minute (m/s to ft/min)	(m/s) * 196.85039 = (ft/min)
Meters/second to feet/second (m/s to ft/s)	(m/s) * 3.2808399 = (ft/s)
Meters/second to kilometers/hour (m/s to kph)	(m/s) * 3.6 = (kph)
Meters/second to knots (m/s to kt)	(m/s) * 1.943846 = (kt)
Meters/second to miles/hour (m/s to mph)	(m/s) * 2.2369363 = (mph)
Miles to feet (mi to ft)	(mi) * 5280 = (ft)
Miles to kilometers (mi to km)	(mi) * 1.609344 = (km)
Miles to meters (mi to m)	(mi) * 1609.344 = (m)
Miles/hour to feet/minute (mph to ft/min)	(mph) * 88 = (ft/min)
Miles/hour to feet/second (mph to ft/s)	(mph) * 1.466666 = (ft/s)
Miles/hour to kilometers/hour (mph to kph)	(mph) * 1.609344 = (kph)
Miles/hour to knots (mph to kt)	(mph) * 0.86897624 = (kt)
Miles/hour to meters/second (mph to m/s)	(mph) * 0.44704 = (m/s)
Millibars to atmospheres (mb to atm)	(mb) * 0.000986923 = (atm)
Millibars to hectopascals (mb to hPa)	Nothing - they are equivalent units
Millibars to inches of mercury @32°F (mb to inHg32)	(mb) * 0.02953 = (inHg32)
Millibars to inches of mercury @60°F (mb to inHg60)	(mb) * 0.02961 = (inHg60)
Millibars to kilopascals (mb to kPa)	(mb) * 0.1 = (kPa)
Millibars to millimeters of mercury @32°F (mb to mmHg)	(mb) * 0.75006 = (mmHg)
Millibars to millimeters of mercury @60°F (mb to mmHg)	(mb) * 0.75218 = (mmHg)
Millibars to newtons/square meter (mb to N/m²)	(mb) * 100 = (N/m ²)
Millibars to pascals (mb to Pa)	(mb) * 100 = (Pa)
Millibars to pounds/square foot (mb to lb/ft²)	(mb) * 2.088543 = (lb/ft ²)

Millibars to pounds/square inch (mb to lb/in²)	(mb) * 0.0145038 = (lb/in ²)
Millimeters to centimeters (mm to cm)	(mm) * 0.1 = (cm)
Millimeters to inches (mm to in)	(mm) * 0.039370078 = (in)
Millimeters of mercury @32°F to millibars (mmHg to mb)	(mmHg) * 1.33322 = (mb)
Millimeters of mercury @60°F to millibars (mmHg to mb)	(mmHg) * 1.32947 = (mb)
Nautical miles to kilometers (nmi to km)	(nmi) * 1.852 = (km)
Nautical miles to statute miles (nmi to mi)	(nmi) * 1.1507794 = (mi)
Nautical miles/hour to knots (nmph to kt)	Nothing - they are equivalent units
Newtons/square meter to millibars (N/m² to mb)	(N/m ²) * 0.01 = (mb)
Pascals to atmospheres (Pa to atm)	(Pa) * 0.000009869 = (atm)
Pascals to millibars (Pa to mb)	(Pa) * 0.01 = (mb)
Pounds/cubic foot to grams/cubic centimeter (lb/ft³ to gm/cm³)	(lb/ft ³) * 0.016018463 = (gm/cm ³)
Pounds/cubic foot to grams/cubic meter (lb/ft³ to gm/m³)	(lb/ft ³) * 16018.46327 = (gm/m ³)
Pounds/cubic foot to kilograms/cubic meter (lb/ft³ to kg/m³)	(lb/ft ³) * 16.018463 = (kg/m ³)
Pounds/square foot to millibars (lb/ft² to mb)	(lb/ft ²) * 0.478803 = (mb)
Pounds/square inch to atmospheres (lb/in² to atm)	(lb/in ²) * 0.068046 = (atm)
Pounds/square inch to inches of mercury @32°F (lb/in² to inHg32)	(lb/in ²) * 2.03602 = (inHg32)
Pounds/square inch to inches of mercury @60°F (lb/in² to inHg60)	(lb/in ²) * 2.04177 = (inHg60)
Pounds/square inch to millibars (lb/in² to mb)	(lb/in ²) * 68.9474483 = (mb)
Radians to degrees (rad to deg)	(rad) * 57.29577951 = (deg)
Slugs/cubic foot to kilograms/cubic meter (slug/ft³ to kg/m³)	(slug/ft ³) * 515.378 = (kg/m ³)

Statute miles to nautical miles (**mi to nmi**)

$$(\text{mi}) * 0.86897624 = (\text{nmi})$$