

# Conversion Factors

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# Conversion Factors

## A

To Convert	Into	Multiply By
Abcoulomb	Statcoulombs	$2.998 \times 10^6$
Acre	Sq chain (Gunters)	10
Acre	Rods	160
Acre	Square links (Gunters)	$1 \times 10^5$
Acre	Hectare or sq hectometer	0.4047
acres	Roods	4.0
acres	sq feet	43,560.0
acres	sq meters	4,047.0
acres	sq miles	$1,562 \times 10^{-3}$
acres	sq yards	4,840.0
acre-feet	cu feet	43,560.0
acre-feet	gallons	$3.259 \times 10^5$
amperes/sq cm	amps/sq in	6.452
amperes/sq cm	amps/sq meter	$10^4$
amperes/sq in	amps/sq cm	0.1550
amperes/sq in	amps/sq meter	1,550.0
amperes/sq meter	amps/sq cm	$10^{-4}$
amperes/sq meter	amps/sq in	$6.452 \times 10^{-4}$
ampere-hours	coulombs	3,600.0
ampere-hours	faradays	0.03731
ampere-turns	gilberts	1.257
ampere-turns/cm	amp-turns/in	2.540
ampere-turns/cm	amp-turns/meter	100.0
ampere-turns/cm	gilberts/cm	1.257
ampere-turns/in	amp-turns/cm	0.3937
ampere-turns/in	amp-turns/meter	39.37
ampere-turns/in	gilberts/cm	0.4950
ampere-turns/meter	amp-turns/cm	0.01
ampere-turns/meter	amp-turns/in	0.0254
ampere-turns/meter	gilberts/cm	0.01257
Angstrom unit	inch	$3937 \times 10^{-9}$
Angstrom unit	Meter	$1 \times 10^{-10}$
Angstrom unit	Micron or ( $\mu$ )	$1 \times 10^{-4}$
Are	Acre (US)	0.02471
Ares	sq yards	119.60
ares	acres	0.02471
ares	sq meters	100.0
Astronomical Unit	Kilometers	$1.495 \times 10^8$
Atmospheres	Ton/sq inch	0.007348
atmospheres	cms of mercury	76.0
atmospheres	ft of water (at 4°C)	33.90
atmospheres	in. of mercury (at 0°C)	29.92
atmospheres	kgs/sq cm	1.0333
atmospheres	kgs/sq meter	10,332.0
atmospheres	pounds/sq in	14.70
atmospheres	tons/sq ft	1.058

# Conversion Factors

## B

To Convert	Into	Multiply By
Barrels (U.S., dry)	cu inches	7,056.0
Barrels (U.S., dry)	quarts (dry)	105.0
Barrels (U.S., liquid)	gallons	31.5
barrels (oil)	gallons (oil)	42.0
bars	atmospheres	0.9869
bars	dynes/sq cm	10 6
bars	kgs/sq meter	$1.020 \times 10^4$
bars	pounds/sq ft	2,089.0
bars	pounds/sq in	14.50
Baryl	Dyne/sq cm	1.000
Bolt (U.S. Cloth)	Meters	36.576
BTU	Liter—Atmosphere	10.409
Btu	ergs	$1.0550 \times 10^{10}$
Btu	foot-lbs	778.3
Btu	gram-calories	252.0
Btu	horsepower-hrs	$3.931 \times 10^{-4}$
Btu	joules	1,054.8
Btu	kilogram-calories	0.2520
Btu	kilogram-meters	107.5
Btu	kilowatt-hrs	$2.298 \times 10^{-4}$
Btu/hr	foot-pounds/sec	0.2162
Btu/hr	gram-cal/sec	0.0700
Btu/hr	horsepower-hrs	$3.929 \times 10^{-4}$
Btu/hr	watts	0.2931
Btu/min	foot-pounds/sec	12.96
Btu/min	horsepower	0.02356
Btu/min	kilowatts	0.01757
Btu/min	watts	17.57
Btu/sq ft/min	watts/sq in	0.1221
Bucket (Br. dry)	Cubic Cm (mL)	$1.818 \times 10^4$
bushels	cu ft	1.2445
bushels	cu in	2,150.4
bushels	cu meters	0.03524
bushels	liters	35.24
bushels	pecks	4.0
bushels	pints (dry)	64.0
bushels	quarts (dry)	32.0

# Conversion Factors

## C

To Convert	Into	Multiply By
Calories, gram (mean)	BTU (mean)	$3.9685 \times 10^{-3}$
Candle/sq cm	Lamberts	3.142
Candle/sq inch	Lamberts	0.4870
Centares (centiares)	sq meters	1.0
Centigrade	Fahrenheit	$(C^{\circ} \times 9/5) + 32$
centigrams	grams	0.01
Centiliter	Ounce Fluid (U.S.)	0.3382
Centiliter	Cubic inch.	0.6103
Centiliter	drams	2.705
centiliters	liters	0.01
centimeters	feet	$3.281 \times 10^{-2}$
centimeters	inches	0.3937
centimeters	kilometers	$10^{-5}$
centimeters	meters	0.01
centimeters	miles	$6.214 \times 10^{-6}$
centimeters	millimeters	10.0
centimeters	mils	393.7
centimeters	yards	$1.094 \times 10^{-2}$
centimeter-dynes	cm-grams	$1.020 \times 10^{-3}$
centimeter-dynes	meter-kgs	$1.020 \times 10^{-6}$
centimeter-dynes	pound-feet	$7.376 \times 10^{-6}$
centimeter-grams	cm-dynes	980.7
centimeter-grams	meter-kgs	$10^{-5}$
centimeter-grams	pound-feet	$7.233 \times 10^{-5}$
centimeters of mercury	atmospheres	0.01316
centimeters of mercury	feet of water	0.4461
centimeters of mercury	kgs/sq meter	136.0
centimeters of mercury	pounds/sq ft	27.85
centimeters of mercury	pounds/sq in	0.1934
centimeters/sec	feet/min	1.1969
centimeters/sec	feet/sec	0.03281
centimeters/sec	kilometers/hr	0.036
centimeters/sec	knots	0.1943
centimeters/sec	meters/min	0.6
centimeters/sec	miles/hr	0.02237
centimeters/sec	miles/min	$3.728 \times 10^{-4}$
centimeters/sec/sec	feet/sec/sec	0.03281
centimeters/sec/sec	kms/hr/sec	0.036
centimeters/sec/sec	meters/sec/sec	0.01
centimeters/sec/sec	miles/hr/sec	0.02237
Chain	Inches	792.0
Chain	meters	20.12
Chains (surveyors' or Gunter's)	yards	22.0
circular mils	sq cms	$5.067 \times 10^{-4}$
circular mils	sq mils	0.7854
circular mils	sq inches	$7.854 \times 10^{-7}$
Circumference	Radians	6.283
Cords	cord feet	8.0
Cord feet	cu feet	16
Cord	cu meter	3.6245
Cord (wood)	cu feet	128
Cord	steres	3.625
Coulomb	Statcoulombs	$2.998 \times 10^9$
coulombs	faradays	$1.036 \times 10^{-5}$
coulombs/sq cm	coulombs/sq in	64.52
coulombs/sq cm	coulombs/sq meter	$10^4$
coulombs/sq in	coulombs/sq cm	0.1550
coulombs/sq in	coulombs/sq meter	1,550.0
coulombs/sq meter	coulombs/sq cm	$10^{-4}$
coulombs/sq meter	coulombs/sq in	$6.452 \times 10^{-4}$

# Conversion Factors

## C

To Convert	Into	Multiply By
cubic centimeters (mL)	cu feet	$3.531 \times 10^{-5}$
cubic centimeters (mL)	cu inches	0.06102
cubic centimeters (mL)	cu meters	$10^{-6}$
cubic centimeters (mL)	cu yards	$1.308 \times 10^{-6}$
cubic centimeters (mL)	gallons (U.S. liq)	$2.642 \times 10^{-4}$
cubic centimeters (mL)	liters	0.001
cubic centimeters (mL)	pints (U.S. liq)	$2.113 \times 10^{-3}$
cubic centimeters (mL)	quarts (U.S. liq)	$1.057 \times 10^{-3}$
cubic feet	bushels (dry)	0.8036
cubic feet	cord (wood)	$7.81 \times 10^{-3}$
cubic feet	cu cms (mL)	28,320.0
cubic feet	cu inches	1,728.0
cubic feet	cu meters	0.02832
cubic feet	cu yards	0.03704
cubic feet	gallons (U.S. liq)	7.48052
cubic feet	liters	28.32
cubic feet	pints (U.S. liq)	59.84
cubic feet	quarts (U.S. liq)	29.92
cubic feet	ton (shipping)	0.025
cubic feet/min	cu cms/sec	472.0
cubic feet/min	gallons/sec	0.1247
cubic feet/min	liters/sec	0.4720
cubic feet/min	pounds of water/min	62.43
cubic feet/sec	million gals/day	0.646317
cubic feet/sec	gallons/min	448.831
cubic inches	bushel	$4.65 \times 10^{-4}$
cubic inches	cu cms (mL)	16.39
cubic inches	cu feet	$5.787 \times 10^{-4}$
cubic inches	cu meters	$1.639 \times 10^{-5}$
cubic inches	cu yards	$2.143 \times 10^{-5}$
cubic inches	gallons	$4.329 \times 10^{-3}$
cubic inches	liters	0.01639
cubic inches	mil-feet	$1.061 \times 10^5$
cubic inches	pints (U.S. liq)	0.03463
cubic inches	quarts (U.S. liq)	0.01732
cubic meters	bushels (dry)	28.38
cubic meters	ords	0.2759
cubic meters	cu cms (mL)	$10^6$
cubic meters	cu feet	35.31
cubic meters	cu inches	61,023.0
cubic meters	cu yards	1,308.0
cubic meters	gallons (U.S. liq)	264.2
cubic meters	liters	1,000.0
cubic meters	pints (U.S. liq)	2,113.0
cubic meters	quarts (U.S. liq)	1,057.0
cubic yards	cu cms (mL)	$7,646 \times 10^5$
cubic yards	cu feet	27.0
cubic yards	cu inches	46,656.0
cubic yards	cu meters	0.7646
cubic yards	gallons (U.S. liq)	202.0
cubic yards	liters	764.6
cubic yards	pints (U.S. liq)	1,615.9
cubic yards	quarts (U.S. liq)	807.9
cubic yards/min	cubic ft/sec	0.45
cubic yards/min	gallons/sec	3.367
cubic yards/min	liters/sec	12.74

# Conversion Factors

## D

To Convert	Into	Multiply By
Dalton	Gram	$1.650 \times 10^{-24}$
days	seconds	86,400.0
decigrams	grams	0.1
deciliters	liters	0.1
decimeter	inches	0.254
decimeter	feet	3.0487
decimeters	meters	0.1
degrees (angle)	quadrants	0.01111
degrees (angle)	radians	0.01745
degrees (angle)	seconds	3,600.0
degrees/sec	radians/sec	0.01745
degrees/sec	revolutions/min	0.1667
degrees/sec	revolutions/sec	$2.778 \times 10^{-3}$
dekagrams	grams	10.0
dekaliters	liters	10.0
dekameters	meters	10.0
Drams (apothecaries' or troy)	ounces (avoirdupois)	0.1371429
Drams (apothecaries' or troy)	ounces (troy)	0.125
Drams (U.S., fluid or apoth.)	cubic cm (mL)	3.6967
drams	grams	1.7718
drams	grains	27.3437
drams	ounces	0.0625
dram	mL	3.696
Dyne/cm	Erg/sq millimeter	0.01
Dyne/sq cm	Atmospheres	$9.869 \times 10^{-7}$
Dyne/sq cm	Inch of Mercury at 0°C	$2.953 \times 10^{-5}$
Dyne/sq cm	Inch of Water at 4° C	$4.015 \times 10^{-4}$
dynes	grams	$1.020 \times 10^{-3}$
dynes	joules/cm	$10^{-7}$
dynes	joules/meter (newtons)	$10^{-5}$
dynes	kilograms	$1.020 \times 10^{-6}$
dynes	poundals	$7.233 \times 10^{-5}$
dynes	pounds	$2.248 \times 10^{-6}$
dynes/sq	cm bars	$10^6$

# Conversion Factors

## E

To Convert	Into	Multiply By
EI	Cm	114.30
EI	Inches	45
Em, Pica	Inch	0.167
Em, Pica	Cm	0.4233
Erg/sec	Dyne-cm/sec	1.000
ergs	BTU	$9.480 \times 10^{-11}$
ergs	dyne-centimeters	1.0
ergs	foot-pounds	$7.367 \times 10^{-6}$
ergs	gram-calories	$0.2389 \times 10^7$
ergs	gram-cms	$1.020 \times 10^{-3}$
ergs	horsepower-hrs	$3.7250 \times 10^{-14}$
ergs	joules	$10^{-7}$
ergs	kg-calories	$2.389 \times 10^{-11}$
ergs	kg-meters	$1.020 \times 10^{-8}$
ergs	kilowatt-hrs	$0.2778 \times 10^{-13}$
ergs	watt-hours	$0.2778 \times 10^{-10}$
ergs/sec	Btu/min	$5.688 \times 10^{-9}$
ergs/sec	ft-lbs/min	$4.427 \times 10^{-6}$
ergs/sec	ft-lbs/sec	$7.3756 \times 10^{-8}$
ergs/sec	horsepower	$1.341 \times 10^{-10}$
ergs/sec	kg-calories/min	$1.433 \times 10^{-9}$
ergs/sec	kilowatts	$10^{-10}$

# Conversion Factors

## F

To Convert	Into	Multiply By
farads	microfarads	$10^6$
Faraday/sec	Ampere (absolute)	$9.6500 \times 10^4$
faradays	ampere-hours	26.80
faradays	coulombs	$9.649 \times 10^4$
Fathom	Meter	1.828804
fathoms	feet	6.0
feet	centimeters	30.48
feet	inches	12.0
feet	kilometers	$3.048 \times 10^{-4}$
feet	meters	0.3048
feet	miles (neut.)	$1.645 \times 10^{-4}$
feet	miles (stat.)	$1.894 \times 10^{-4}$
feet	millimeters	304.8
feet	mils	$1.2 \times 10^4$
feet	yards	0.333
feet of water	atmospheres	0.02950
feet of water	in. of mercury	0.8826
feet of water	kgs/sq cm	0.03048
feet of water	kgs/sq meter	304.8
feet of water	pounds/sq ft	62.43
feet of water	pounds/sq in	0.4335
feet/min	cms/sec	0.5080
feet/min	feet/sec	0.01667
feet/min	kms/hr	0.01829
feet/min	meters/min	0.3048
feet/min	miles/hr	0.01136
feet/sec	cms/sec	30.48
feet/sec	kms/hr	1.097
feet/sec	knots	0.5921
feet/sec	meters/min	18.29
feet/sec	miles/hr	0.6818
feet/sec	miles/min	0.01136
feet/sec/sec	cms/sec/sec	30.48
feet/sec/sec	kms/hr/sec	1.097
feet/sec/sec	meters/sec/sec	0.3048
feet/sec/sec	miles/hr/sec	0.6818
feet/100 feet	per cent grade	1.0
Foot—candle	Lumen/sq meter	10.764
foot-pounds	Btu	$1.286 \times 10^{-3}$
foot-pounds	ergs	$1.356 \times 10^7$
foot-pounds	gram-calories	0.3238
foot-pounds	hp-hrs	$5.050 \times 10^{-7}$
foot-pounds	joules	1.356
foot-pounds	kg-calories	$3.24 \times 10^{-4}$
foot-pounds	kg-meters	0.1383
foot-pounds	kilowatt-hrs	$3.766 \times 10^{-7}$
foot-pounds/min	Btu/min	$1.286 \times 10^{-3}$
foot-pounds/min	foot-pounds/sec	0.01667
foot-pounds/min	horsepower	$3.030 \times 10^{-5}$
foot-pounds/min	kg-calories/min	$3.24 \times 10^{-4}$
foot-pounds/min	kilowatts	$2.260 \times 10^{-5}$
foot-pounds/sec	Btu/hr	4.6263
foot-pounds/sec	Btu/min	0.07717
foot-pounds/sec	horsepower	$1.818 \times 10^{-3}$
foot-pounds/sec	kg-calories/min	0.01945
foot-pounds/sec	kilowatts	$1.356 \times 10^{-3}$
Furlongs	miles (U.S.)	0.125
furlongs	rods	40.0
furlongs	feet	660.0
furlongs	mile (sta.)	0.125



# Conversion Factors

## G

To Convert	Into	Multiply By
gallons	cu cms (mL)	3,785.0
gallons	cu feet	0.1337
gallons	cu inches	231.0
gallons	cu meters	$3.785 \times 10^{-3}$
gallons	cu yards	$4.951 \times 10^{-3}$
gallons	liters	3.785
gallons (liq Br. Imp.)	gallons (U.S. liq)	1.20095
gallons (U.S.)	gallons (Imp.)	0.83267
gallons of water	pounds of water	8.3453
gallons/min	cu ft/sec	$2.228 \times 10^{-3}$
gallons/min	liters/sec	0.06308
gallons/min	cu ft/hr	8.0208
gausses	lines/sq in	6.452
gausses	webers/sq cm	$10^{-8}$
gausses	webers/sq in	$6.452 \times 10^{-4}$
gausses	webers/sq meter	$10^{-4}$
gilberts	ampere-turns	0.7958
gilberts/cm	amp-turns/cm	0.7958
gilberts/cm	amp-turns/in	2.021
gilberts/cm	amp-turns/meter	79.58
Gills (British)	cubic cm (mL)	142.07
gills	liters	0.1183
gills	pints (liq)	0.25
Grade	Radian	0.01571
Grains	drams (avoirdupois)	0.03657143
grains (troy)	grains (avdp)	1.0
grains (troy)	grams	0.06480
grains (troy)	ounces (avdp)	$2.0833 \times 10^{-3}$
grains (troy)	pennyweight (troy)	0.04167
grains/U.S. gal	parts/million	17.118
grains/U.S. gal	pounds/million gal	142.86
grains/Imp. gal	parts/million	14.286
grams	dynes	980.7
grams	grains	15.43
grams	joules/cm	$9.807 \times 10^{-5}$
grams	joules/meter (newtons)	$9.807 \times 10^3$
grams	kilograms	0.001
grams	milligrams	1,000.0
grams	ounces (avdp)	0.03527
grams	ounces (troy)	0.03215
grams	poundals	0.07093
grams	pounds	$2.205 \times 10^{-3}$
grams/cm	pounds/inch	$5.600 \times 10^{-3}$
grams/cu cm	pounds/cu ft	62.43
grams/cu cm	pounds/cu in	0.03613
grams/cu cm	pounds/mil-foot	$3.405 \times 10^{-7}$
grams/liter	grains/gal	58.417
grams/liter	pounds/1,000 gal	8.345
grams/liter	pounds/cu ft	0.062427
grams/liter	parts/million	1,000.0
grams/sq cm	pounds/sq ft	2.0481
gram-calories	Btu	$3.9683 \times 10^{-3}$
gram-calories	ergs	$4.1868 \times 10^7$
gram-calories	foot-pounds	3.0880
gram-calories	horsepower/hrs	$1.5596 \times 10^{-6}$
gram-calories	kilowatt-hrs	$1.1630 \times 10^{-6}$
gram-calories	watt-hrs	$1.1630 \times 10^{-3}$
gram/calories/sec	Btu/hr	14.286
gram-centimeters	Btu	$9.297 \times 10^{-8}$
gram-centimeters	ergs	980.7
gram-centimeters	joules	$9.807 \times 10^{-5}$
gram-centimeters	kg-cal	$2.343 \times 10^{-8}$
gram-centimeters	kg-meters	$10^{-5}$

# Conversion Factors

## H

To Convert	Into	Multiply By
Hand	Cm	10.16
hectares	acres	2.471
hectares	sq feet	$1.076 \times 10^5$
hectograms	grams	100
hectoliters	liters	100
hectometers	meters	100
hectowatts	watts	100
henries	millihenries	1,000.0
Hogsheads (British)	cubic ft	10.114
Hogsheads (U.S.)	cubic ft	8.42184
Hogsheads (U.S.)	gallons (U.S.)	63
horsepower	Btu/min	42.44
horsepower	foot-lbs/min	33,000.0
horsepower	foot-lbs/sec	550.0
horsepower (metric) (542.5 ft lb/sec)	horsepower (550 ft lb/sec)	0.9863
horsepower (550 ft lb/sec)	horsepower (metric) (542.5 ft lb/sec)	1.014
horsepower	kg-calories/min	10.68
horsepower	kilowatts	0.7457
horsepower	watts	745.7
horsepower (boiler)	Btu/hr	33.479
horsepower (boiler)	kilowatts	9.803
horsepower-hrs	Btu	2,547.0
horsepower-hrs	ergs	$2.6845 \times 10^{13}$
horsepower-hrs	foot-lbs	$1.98 \times 10^6$
horsepower-hrs	gram-calories	641,190.0
horsepower-hrs	joules	$2.684 \times 10^6$
horsepower-hrs	kg-calories	641.1
horsepower-hrs	kg-meters	$2.737 \times 10^5$
horsepower-hrs	kilowatt-hrs	0.7457
hours	days	$4.167 \times 10^{-2}$
hours	weeks	$5.952 \times 10^{-3}$
Hundredweights	(long) pounds	112
Hundredweights (long)	tons (long)	0.05
Hundredweights (short)	ounces (avoirdupos)	1,600
Hundredweights (short)	pounds	100
Hundredweights (short)	tons (metric)	0.0453592
Hundredweights (short)	tons (long)	0.0446429
Hundredweight (cwt)	quarters	4.0

# Conversion Factors

## I

To Convert	Into	Multiply By
inches	centimeters	2.540
inches	feet	0.0833
inches	link	0.12626
inches	meters	$2.540 \times 10^{-2}$
inches	miles	$1.578 \times 10^{-5}$
inches	millimeters	25.40
inches	mils	1,000.0
inches	yards	$2.778 \times 10^{-2}$
inches of mercury	atmospheres	0.03342
inches of mercury	feet of water	1.133
inches of mercury	kgs/sq cm	0.03453
inches of mercury	kgs/sq meter	345.3
inches of mercury	pounds/sq ft	70.73
inches of mercury	pounds/sq in	0.4912
inches of water (at 4° C)	atmospheres	$2.458 \times 10^{-3}$
inches of water (at 4° C)	inches of mercury	0.07355
inches of water (at 4° C)	kgs/sq cm	$2.540 \times 10^{-3}$
inches of water (at 4° C)	ounces/sq in	0.5781
inches of water (at 4° C)	pounds/sq ft	5.204
inches of water (at 4° C)	pounds/sq in	0.03613
International Ampere	Ampere (absolute)	0.9998
International Volt	Volts (absolute)	1.0003
International volt	Joules (absolute)	$1.593 \times 10^{-19}$
International volt	Joules	$9.654 \times 10^4$

# Conversion Factors

## J

To Convert	Into	Multiply By
joules	Btu	$9.480 \times 10^{-4}$
joules	ergs	$10^7$
joules	foot-pounds	0.7376
joules	kg-calories	$2.389 \times 10^{-4}$
joules	kg-meters	0.1020
joules	watt-hrs	$2.778 \times 10^{-4}$
joules/cm	grams	$1.020 \times 10^4$
joules/cm	dynes	$10^7$
joules/cm	joules/meter (newtons)	100
joules/cm	poundals	723.3
joules/cm	pounds	22.48

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# Conversion Factors

## K

To Convert	Into	Multiply By
kilograms	dynes	980,665.0
kilograms	grams	1,000.0
kilograms	joules/cm	0.09807
kilograms	joules/meter (newtons)	9.807
kilograms	poundals	70.93
kilograms	pounds	2.205
kilograms	tons (long)	$9.842 \times 10^{-4}$
kilograms	tons (short)	$1.102 \times 10^{-3}$
kilograms/cu meter	grams/cu cm	0.001
kilograms/cu meter	pounds/cu ft	0.06243
kilograms/cu meter	pounds/cu in	$3.613 \times 10^{-5}$
kilograms/cu meter	pounds/mil-foot	$3.405 \times 10^{-10}$
kilograms/meter	pounds/ft	0.6720
kilograms/sq cm	Dynes	980,665.0
kilograms/sq cm	atmospheres	0.9678
kilograms/sq cm	feet of water	32.81
kilograms/sq cm	inches of mercury	28.96
kilograms/sq cm	pounds/sq ft	2,048.0
kilograms/sq cm	pounds/sq in	14.22
kilograms/sq meter	atmospheres	$9.678 \times 10^{-5}$
kilograms/sq meter	bars	$98.07 \times 10^{-6}$
kilograms/sq meter	feet of water	$3.281 \times 10^{-3}$
kilograms/sq meter	inches of mercury	$2.896 \times 10^{-3}$
kilograms/sq meter	pounds/sq ft	0.2048
kilograms/sq meter	pounds/sq in	$1.422 \times 10^{-3}$
kilograms/sq mm	kgs/sq meter	$10^6$
kilogram-calories	Btu	3.968
kilogram-calories	foot-pounds	3,088.0
kilogram-calories	hp-hrs	$1.560 \times 10^{-3}$
kilogram-calories	joules	4,186.0
kilogram-calories	kg-meters	426.9
kilogram-calories	kilojoules	4.186
kilogram-calories	kilowatt-hrs	$1.163 \times 10^{-3}$
kilogram-meters	Btu	$9.294 \times 10^{-3}$
kilogram-meters	ergs	$9.804 \times 10^7$
kilogram meters	foot-pounds	7.233
kilogram meters	joules	9.804
kilogram meters	kg-calories	$2.342 \times 10^{-3}$
kilogram meters	kilowatt-hrs	$2.723 \times 10^{-6}$
kilolines	maxwells	1,000.0
kiloliters	liters	1,000.0
kilometers	centimeters	$10^5$
kilometers	feet	3.281
kilometers	inches	$3.937 \times 10^4$
kilometers	meters	1,000.0
kilometers	miles	0.6214
kilometers	millimeters	$10^6$
kilometers	yards	1,094.0
kilometers/hr	cms/sec	27.78
kilometers/hr	feet/min	54.68
kilometers/hr	feet/sec	0.9113
kilometers/hr	knots	0.5396
kilometers/hr	meters/min	16.67
kilometers/hr	miles/hr	0.6214

# Conversion Factors

## K

To Convert	Into	Multiply By
kilometers/hr/sec	cms/sec/sec	27.78
kilometers/hr/sec	ft/sec/sec	0.9113
kilometers/hr/sec	meters/sec/sec	0.2778
kilometers/hr/sec	miles/hr/sec	0.6214
kilowatts	BTU/min	56.92
kilowatts	foot-lbs/min	$4.426 \times 10^4$
kilowatts	foot-lbs/sec	737.6
kilowatts	horsepower	1.341
kilowatts	kg-calories/min	14.34
kilowatts	watts	1,000.0
kilowatt-hrs	Btu	3,413.0
kilowatt-hrs	ergs	$3.600 \times 10^{13}$
kilowatt-hrs	foot-lbs	$2.655 \times 10^6$
kilowatt-hrs	gram-calories	859,850.0
kilowatt-hrs	horsepower-hrs	1.341
kilowatt-hrs	joules	$3.6 \times 10^6$
kilowatt-hrs	kg-calories	860.5
kilowatt-hrs	kg-meters	$3.671 \times 10^6$
kilowatt-hrs	pounds of water evaporated from and at 212°F	3.53
kilowatt-hrs	pounds of water raised from 62° to 212°F	22.75
knots	feet/hr	6,080.0
knots	kilometer/hr	1.8532
knots	nautical miles/hr	1.0
knots	statute miles/hr	1.151
knots	yards/hr	2,027.0
knots	feet/sec	1.689

# Conversion Factors

## L

To Convert	Into	Multiply By
league	miles (approx)	3.0
Light year	Miles	$5.9 \times 10^{12}$
Light year	Kilometers	$9.46091 \times 10^{12}$
lines/sq cm	gausses	1.0
lines/sq in	gausses	0.1550
lines/sq in	webers/sq cm	$1.550 \times 10^{-9}$
lines/sq in	webers/sq in	$10^{-8}$
lines/sq in	webers/sq meter	$1.550 \times 10^{-5}$
links (engineer's)	inches	12.0
links (surveyor's)	inches	7.92
links	rods	0.04
liters	bushels (U.S. dry)	0.02838
liters	cu cm (mL)	1,000.0
liters	cu feet	0.03531
liters	cu inches	61.02
liters	cu meters	0.001
liters	cu yards	$1.308 \times 10^{-3}$
liters	gallons (U.S. liq)	0.2642
liters	pints (U.S. liq)	2.113
liters	quarts (U.S. liq)	1.057
liters	quarts (U.S. dry)	0.908
liters/min	cu ft/sec	$5.886 \times 10^{-4}$
liters/min	gals/sec	$4.403 \times 10^{-3}$
lumens/sq ft	foot-candles	1.0
Lumen	Spherical candle power	0.07958
Lumen	Watt	0.001496
Lumen/sq ft	Lumen/sq meter	10.76
lux	foot-candles	0.0929

# Conversion Factors

## M

To Convert	Into	Multiply By
maxwells	kilolines	0.001
maxwells	webers	$10^{-8}$
megalines	maxwells	$10^6$
megohms	microhms	$10^{12}$
megohms	ohms	$10^6$
meters	centimeters	100
meters	feet	3.281
meters	inches	39.37
meters	kilometers	0.001
meters	miles (naut)	$5.396 \times 10^{-4}$
meters	miles (stat)	$6.214 \times 10^{-4}$
meters	millimeters	1,000.0
meters	yards	1.094
meters	varas	1.179
meters/min	cms/sec	1.667
meters/min	feet/min	3.281
meters/min	feet/sec	0.05468
meters/min	kms/hr	0.06
meters/min	knots	0.03238
meters/min	miles/hr	0.03728
meters/sec	feet/min	196.8
meters/sec	feet/sec	3.281
meters/sec	kilometers/hr	3.6
meters/sec	kilometers/min	0.06
meters/sec	miles/hr	2.237
meters/sec	miles/min	0.03728
meters/sec/sec	cms/sec/sec	100
meters/sec/sec	ft/sec/sec	3.281
meters/sec/sec	kms/hr/sec	3.6
meters/sec/sec	miles/hr/sec	2.237
meters-kilograms	cm-dynes	$9.807 \times 10^7$
meter-kilograms	cm-grams	$10^5$
meter-kilograms	pound-feet	7.233
microfarad	farads	$10^{-6}$
micrograms	grams	$10^{-6}$
microhms	megohms	$10^{-12}$
microhms	ohms	$10^{-6}$
microliters	liters	$10^{-6}$
Microns	meters	$1 \times 10^{-6}$
mil	inch	0.001
miles (naut)	feet	6,080.27
miles (naut)	kilometers	1,853.0
miles (naut)	league	0.3333
miles (naut)	meters	1,853.0
miles (naut)	miles (statute)	1.1516
miles (naut)	yards	2,027.0
miles (statute)	centimeters	$1.609 \times 10^5$
miles (statute)	feet	5.280
miles (statute)	furlongs	8.0
miles (statute)	inches	$6.336 \times 10^4$
miles (statute)	kilometers	1.609
miles (statute)	meters	1,609.0
miles (statute)	miles (naut)	0.8684
miles (statute)	yards	1,760.0



# Conversion Factors

## M

To Convert	Into	Multiply By
miles/hr	cms/sec	44.70
miles/hr	feet/min	88
miles/hr	feet/sec	1.467
miles/hr	kms/hr	1.609
miles/hr	kms/min	0.02682
miles/hr	knots	0.8684
miles/hr	meters/min	26.82
miles/hr	miles/min	0.1667
miles/hr/sec	cms/sec/sec	44.70
miles/hr/sec	feet/sec/sec	1.467
miles/hr/sec	kms/hr/sec	1.609
miles/hr/sec	meters/sec/sec	0.4470
miles/min	cms/sec	2,682.0
miles/min	feet/sec	88
miles/min	kms/min	1.609
miles/min	knots/min	0.8684
miles/min	miles/hr	60
mil-feet	cu inches	$9.425 \times 10^{-6}$
milliers	kilograms	1,000.0
Millimicrons	meters	$1 \times 10^{-9}$
Milligrams	grains	0.01543236
milligrams	grams	0.001
milligrams/liter	parts/million	1.0
millihenries	henries	0.001
milliliters	liters	0.001
millimeters	centimeters	0.1
millimeters	feet	$3.281 \times 10^{-3}$
millimeters	inches	0.03937
millimeters	kilometers	$10^{-6}$
millimeters	meters	0.001
millimeters	miles	$6.214 \times 10^{-7}$
millimeters	mils	39.37
millimeters	yards	$1.094 \times 10^{-3}$
million gals/day	cu ft/sec	1.54723
mils	centimeters	$2.540 \times 10^{-3}$
mils	feet	$8.333 \times 10^{-5}$
mils	inches	0.001
mils	kilometers	$2.540 \times 10^{-8}$
mils	yards	$2.778 \times 10^{-5}$
miner's inches	cu ft/min	1.5
Minims (British)	cubic cm (mL)	0.059192
Minims (U.S., fluid)	cubic cm (mL)	0.061612
minutes (angles)	degrees	0.01667
minutes (angles)	quadrants	$1.852 \times 10^{-4}$
minutes (angles)	radians	$2.909 \times 10^{-4}$
minutes (angles)	seconds	60
myriagrams	kilograms	10
myriameters	kilometers	10
myriawatts	kilowatts	10

# Conversion Factors

## N

To Convert	Into	Multiply By
neper	decibels	8.686
Newton	Dynes	$1 \times 10^5$

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# Conversion Factors

## O

To Convert	Into	Multiply By
OHM (International)	OHM (absolute)	1.0005
ohms	megohms	$10^{-6}$
ohms	microhms	$10^6$
ounces	drams	16.0
ounces	grains	437.5
ounces	grams	28.349527
ounces	pounds	0.0625
ounces	ounces (troy)	0.9115
ounces	tons (long)	$2.790 \times 10^{-5}$
ounces	tons (metric)	$2.835 \times 10^{-5}$
ounces (fluid)	cu inches	1.805
ounces (fluid)	liters	0.02957
ounces (troy)	grains	480.0
ounces (troy)	grams	31.103481
ounces (troy)	ounces (advp)	1.09714
ounces (troy)	pennyweights (troy)	20.0
ounces (troy)	pounds (troy)	0.08333
Ounce/sq inch	Dynes/sq cm	4,309.0
ounces/sq in	pounds/sq in	0.0625

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# Conversion Factors

## P

To Convert	Into	Multiply By
Parsec	Miles	$19 \times 10^{12}$
Parsec	Kilometers	$3.084 \times 10^{13}$
parts/million	grains/U.S. gal	0.0584
parts/million	grains/Imp. gal	0.07016
parts/million	pounds/million gal	8.345
Pecks (British)	cubic inches	554.6
Pecks (British)	liters	9.091901
Pecks (U.S.)	bushels	0.25
Pecks (U.S.)	cubic inches	537.605
Pecks (U.S.)	liters	8.809582
Pecks (U.S.)	quarts (dry)	8.0
pennyweights (troy)	grains	24.0
pennyweights (troy)	ounces (troy)	0.05
pennyweights (troy)	grams	1.55517
pennyweights (troy)	pounds (troy)	$4.1667 \times 10^{-3}$
pints (dry)	cu inches	33.60
pints (liq)	cu cms (mL)	473.2
pints (liq)	cu feet	0.01671
pints (liq)	cu inches	28.87
pints (liq)	cu meters	$4.732 \times 10^{-4}$
pints (liq)	gallons	$6.189 \times 10^{-4}$
pints (liq)	liters	0.125
pints (liq)	quarts (liq)	0.4732
pints (liq)	cu yards	0.5
Planck's quantum	Erg—second	$6.624 \times 10^{-27}$
Poise	Gram/cm sec	1.0
pounds (avoirdupois)	ounces (troy)	14.5833
poundals	dynes	13,826.0
poundals	grams	14.1
poundals	joules/cm	$1.383 \times 10^{-3}$
poundals	joules/meter (newtons)	0.1383
poundals	kilograms	0.0141
poundals	pounds	0.03108
pounds	drams	256.0
pounds	dynes	$44.4823 \times 10^4$
pounds	grains	7,000.0
pounds	grams	453.5924
pounds	joules/cm	0.04448
pounds	joules/meter (newtons)	4.448
pounds	kilograms	0.4536
pounds	ounces	16.0
pounds	ounces (troy)	14.5833
pounds	poundals	32.17
pounds	pounds (troy)	1.21528
pounds	quarters	0.04
pounds	tons (short)	0.0005
pounds (troy)	grains	5,760.0
pounds (troy)	grams	373.24177
pounds (troy)	ounces (advp)	13.1657
pounds (troy)	ounces (troy)	12
pounds (troy)	pennyweights (troy)	240
pounds (troy)	pounds (advp)	0.822857
pounds (troy)	tons (long)	$3.6735 \times 10^{-4}$
pounds (troy)	tons (metric)	$3.7324 \times 10^{-4}$
pounds (troy)	tons (short)	$4.1143 \times 10^{-4}$

# Conversion Factors

## P

To Convert	Into	Multiply By
pounds of water	cu feet	0.01602
pounds of water	cu inches	27.68
pounds of water	gallons	0.1198
pounds of water/min	cu ft/sec	$2.670 \times 10^{-4}$
pound-feet	cm-dynes	$1.356 \times 10^7$
pound-feet	cm-grams	13,825.0
pound-feet	meter-kgs	0.1383
pounds/cu ft	grams/cu cm	0.01602
pounds/cu ft	kgs/cu meter	16.02
pounds/cu ft	pounds/cu in	$5.787 \times 10^{-4}$
pounds/cu ft	pounds/mil-foot	$5.456 \times 10^{-9}$
pounds/cu in	gms/cu cm	27.68
pounds/cu in	kgs/cu meter	$2.768 \times 10^4$
pounds/cu in	pounds/cu ft	1,728.0
pounds/cu in	pounds/mil-foot	$9.425 \times 10^{-6}$
pounds/ft	kgs/meter	1.488
pounds/in	gms/cm	178.6
pounds/mil-foot	gms/cu cm	$2.306 \times 10^6$
pounds/sq ft	atmospheres	$4.725 \times 10^{-4}$
pounds/sq ft	feet of water	0.01602
pounds/sq ft	inches of mercury	0.01414
pounds/sq ft	kgs/sq meter	4.882
pounds/sq ft	pounds/sq in	$6.944 \times 10^3$
pounds/sq in	atmospheres	0.06804
pounds/sq in	feet of water	2.307
pounds/sq in	inches of mercury	2.036
pounds/sq in	kgs/sq meter	703.1
pounds/sq in	pounds/sq ft	144

# Conversion Factors

## Q

To Convert	Into	Multiply By
quadrants (angle)	degrees	90
quadrants (angle)	minutes	5,400.0
quadrants (angle)	radians	1.571
quadrants (angle)	seconds	$3.24 \times 10^5$
quarter	pounds	25
quarter	cwt	0.25
quarts (dry)	liters	1.10132
quarts (dry)	cu inches	67.2
quarts (dry)	pints	2.0
quarts (dry)	peck	0.125
quarts (liq)	cu cms (mL)	946.4
quarts (liq)	cu feet	0.03342
quarts (liq)	cu inches	57.75
quarts (liq)	cu meters	$9.464 \times 10^{-4}$
quarts (liq)	cu yards	$1.238 \times 10^{-3}$
quarts (liq)	gallons	0.25
quarts (liq)	liters	0.9463

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# Conversion Factors

## R

To Convert	Into	Multiply By
radians	degrees	57.30
radians	minutes	3,438.0
radians	quadrants	0.6366
radians	seconds	$2.063 \times 10^5$
radians/sec	degrees/sec	57.30
radians/sec	revolutions/min	9.549
radians/sec	revolutions/sec	0.1592
radians/sec/sec	revs/min/min	573
radians/sec/sec	revs/min/sec	9.549
radians/sec/sec	revs/sec/sec	0.1592
revolutions	degrees	360
revolutions	quadrants	4.0
revolutions	radians	6.283
revolutions/min	degrees/sec	6.0
revolutions/min	radians/sec	0.1047
revolutions/min	revs/sec	0.01667
revolutions/min/min	radians/sec/sec	$1.745 \times 10^{-3}$
revolutions/min/min	revs/min/sec	0.01667
revolutions/min/min	revs/sec/sec	$2.778 \times 10^{-4}$
revolutions/sec	degrees/sec	360
revolutions/sec	radians/sec	6.283
revolutions/sec	revs/min	60
revolutions/sec/sec	radians/sec/sec	6.283
revolutions/sec/sec	revs/min/min	3,600.0
revolutions/sec/sec	revs/min/sec	60.0
Rod	Chain (Gunters)	0.25
Rod	Meters	5.029
Rods	furlong	0.025
Rods (Surveyors' meas.)	links	25
Rods (Surveyors' meas.)	yards	5.5
rods	feet	16.5
roods	sq rods	40
roods	acre	0.25

# Conversion Factors

## S

To Convert	Into	Multiply By
Scruples	grains	20
seconds (angle)	degrees	$2.778 \times 10^{-4}$
seconds (angle)	minutes	0.01667
seconds (angle)	quadrants	$3.087 \times 10^{-6}$
seconds (angle)	radians	$4.848 \times 10^{-6}$
Slug	Kilogram	14.59
Slug	Pounds	32.17
Sphere	Steradians	12.57
square centimeters	circular mils	$1.973 \times 10^5$
square centimeters	sq feet	$1.076 \times 10^{-3}$
square centimeters	sq inches	0.1550
square centimeters	sq meters	0.0001
square centimeters	sq miles	$3.861 \times 10^{-11}$
square centimeters	sq millimeters	100
square centimeters	sq yards	$1.196 \times 10^{-4}$
square chains	acre	0.1
square feet	acres	$2.296 \times 10^{-5}$
square feet	circular mils	$1.833 \times 10^8$
square feet	sq cms	929
square feet	sq inches	144
square feet	sq meters	0.09290
square feet	sq miles	$3.587 \times 10^{-8}$
square feet	sq millimeters	$9.290 \times 10^4$
square feet	sq yards	0.1111
square inches	circular mils	$1.273 \times 10^6$
square inches	sq cms	6.452
square inches	sq feet	$6.944 \times 10^{-3}$
square inches	sq millimeters	645.2
square inches	sq mils	$10^6$
square inches	sq yards	$7.716 \times 10^{-4}$
square kilometers	acres	247.1
square kilometers	sq cms	$10^{10}$
square kilometers	sq ft	$10.76 \times 10^6$
square kilometers	sq inches	$1.550 \times 10^9$
square kilometers	sq meters	$10^6$
square kilometers	sq miles	0.3861
square kilometers	sq yards	$1.196 \times 10^6$
square meters	acres	$2.471 \times 10^{-4}$
square meters	sq cms	$10^4$
square meters	sq feet	10.76
square meters	sq inches	1550.0
square meters	sq miles	$3.861 \times 10^{-7}$
square meters	sq millimeters	$10^6$
square meters	sq yards	1.196
square miles	acres	640
square miles	sq feet	$27.88 \times 10^6$
square miles	sq kms	2.590
square miles	sq meters	$2.590 \times 10^6$
square miles	sq yards	$3.098 \times 10^6$
square miles	township	0.2777
square millimeters	circular mils	1,973.0
square millimeters	sq cms	0.01
square millimeters	sq feet	$1.076 \times 10^{-5}$
square millimeters	sq inches	$1.550 \times 10^{-3}$



# Conversion Factors

## S

To Convert	Into	Multiply By
square mils	circular mils	1.273
square mils	sq cms	$6.452 \times 10^{-6}$
square mils	sq inches	$10^6$
square rods	sq yards	30.25
square rods	roods	0.025
square yards	acres	$2.006 \times 10^{-4}$
square yards	sq cms	8,361.0
square yards	sq feet	9.0
square yards	sq inches	1,296.0
square yards	sq meters	0.8361
square yards	sq miles	$3.228 \times 10^{-7}$
square yards	sq millimeters	$8.361 \times 10^5$
square yards	sq rods	0.03305
steres	ords	0.27586

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# Conversion Factors

## T

To Convert	Into	Multiply By
temperature (°C) + 273	absolute temperature (°C)	1.0
temperature (°C) + 17.78	temperature (°F)	1.8
temperature (°F) + 460	absolute temperature (°F)	1.0
temperature (°F) – 32	temperature (°C)	5/9
tons (shipping)	cu feet	40
tons (long)	kilograms	1,016.0
tons (long)	pounds	2,240.0
tons (long)	tons (short)	1.120
tons (metric)	kilograms	1,000.0
tons (metric)	pounds	2,205.0
tons (short)	kilograms	907.1848
tons (short)	ounces	32,000.0
tons (short)	ounces (troy)	29,166.66
tons (short)	pounds	2,000.0
tons (short)	pounds (troy)	2,430.56
tons (short)	tons (long)	0.89287
tons (short)	tons (metric)	0.9078
tons (short)/sq ft	kgs/sq meter	9,765.0
tons (short)/sq ft	pounds/sq in	2,000.0
tons of water/24 hrs	pounds of water/hr	83.333
tons of water/24 hrs	gallons/min	0.16643
tons of water/24 hrs	cu ft/hr	1.3349
township	sq miles	36

# Conversion Factors

## V

To Convert	Into	Multiply By
Volt/inch	Volt/cm	.39370
Volt (absolute)	Statvolts	.003336

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# Conversion Factors

## W

To Convert	Into	Multiply By
watts	Btu/hr	3.4129
watts	Btu/min	0.05688
watts	ergs/sec	107
watts	foot-lbs/min	44.27
watts	foot-lbs/sec	0.7378
watts	horsepower	$1.341 \times 10^{-3}$
watts	horsepower (metric)	$1.360 \times 10^{-3}$
watts	kg-calories/min	0.01433
watts	kilowatts	0.001
Watts (Abs)	BTU (mean)/min	0.056884
Watts (Abs)	joules/sec	1.0
watt-hours	Btu	3.413
watt-hours	ergs	$3.60 \times 10^{10}$
watt-hours	foot-pounds	2,656.0
watt-hours	gram-calories	859.85
watt-hours	horsepower-hrs	$1.341 \times 10^{-3}$
watt-hours	kilogram-calories	0.8605
watt-hours	kilogram-meters	367.2
watt-hours	kilowatt-hrs	0.001
Watt (International)	Watt (absolute)	1.0002
webers	maxwells	$10^8$
webers	kilolines	$10^5$
webers/sq in	gausses	$1.550 \times 10^7$
webers/sq in	lines/sq in	$10^8$
webers/sq in	webers/sq cm	0.1550
webers/sq in	webers/sq meter	1,550.0
webers/sq meter	gausses	$10^4$
webers/sq meter	lines/sq in	$6,452 \times 10^4$
webers/sq meter	webers/sq cm	$10^{-4}$
webers/sq meter	webers/sq in	$6.452 \times 10^{-4}$

# Conversion Factors

## Y

To Convert	Into	Multiply By
yards	centimeters	91.44
yards	feet	3.0
yards	kilometers	$9.144 \times 10^{-4}$
yards	meters	0.9144
yards	miles (naut)	$4.934 \times 10^{-4}$
yards	miles (stat)	$5.682 \times 10^{-4}$
yards	millimeters	914.4
yards	rods	0.18181

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