



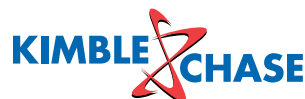
## TECHNICAL INFORMATION: Conversion Factors

<b>A</b>		
To Convert	Into	Multiply By
Abcoulomb	Statcoulombs	2.998 x 10
Acre	Sq chain (Gunters)	10
Acre	Rods	160
Acre	Square links (Gunters)	1 x 10 <sup>5</sup>
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 x 10 <sup>-3</sup>
acres	sq yards	4,840.0
acre-feet	cu feet	43,560.0
acre-feet	gallons	3.259 x 10 <sup>5</sup>
amperes/sq cm	amps/sq in	6.452
amperes/sq cm	amps/sq meter	10 <sup>4</sup>
amperes/sq in	amps/sq cm	0.1550
amperes/sq in	amps/sq meter	1,550.0
amperes/sq meter	amps/sq cm	10 <sup>-4</sup>
amperes/sq meter	amps/sq in	6.452 x 10 <sup>-4</sup>
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 x 10 <sup>-9</sup>
Angstrom unit	Meter	1 x 10 <sup>-10</sup>
Angstrom unit	Micron or (Mu)	1 x 10 <sup>-4</sup>
Are	Acre (US)	0.02471
Ares	sq yards	119.60
ares	acres	0.02471
ares	sq meters	100.0
Astronomical Unit	Kilometers	1.495 x 10 <sup>8</sup>
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

<b>B</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 <sup>6</sup>

bars	kgs/sq meter	1.020 x 10 <sup>4</sup>
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 x 10 <sup>10</sup>
Btu	foot-lbs	778.3
Btu	gram-calories	252.0
Btu	horsepower-hrs	3.931 x 10 <sup>-4</sup>
Btu	joules	1,054.8
Btu	kilogram-calories	0.2520
Btu	kilogram-meters	107.5
Btu	kilowatt-hrs	2.298 x 10 <sup>-4</sup>
Btu/hr	foot-pounds/sec	0.2162
Btu/hr	gram-cal/sec	0.0700
Btu/hr	horsepower-hrs	3.929 x 10 <sup>-4</sup>
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 x 10 <sup>4</sup>
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

<b>C</b>		
To Convert	Into	Multiply By
Calories, gram (mean)	BTU (mean)	3.9685 x 10 <sup>-3</sup>
Candle/sq cm	Lamberts	3.142
Candle/sq inch	Lamberts	0.4870
Centares (centiares)	sq meters	1.0
Centigrade	Fahrenheit	(C° x 9/5) + 32
centigrams	grams	0.01



Your Source for Kimble,  
Kontes and Chase Brands

Tel: 888-546-2531  
Fax: 856-794-9762  
www.kimble-chase.com  
info@kimble-chase.com

ISO 9001:2000 Registered



Centiliter	Ounce Fluid (U.S.)	0.3382			
Centiliter	Cubic inch	0.6103	cubic feet	cu inches	1,728.0
Centiliter	drams	2.705	cubic feet	cu meters	0.02832
centiliters	liters	0.01	cubic feet	cu yards	0.03704
centimeters	feet	3.281 x 10 <sup>-2</sup>	cubic feet	gallons (U.S. liq)	7.48052
centimeters	inches	0.3937	cubic feet	liters	28.32
centimeters	kilometers	10 <sup>-5</sup>	cubic feet	pints (U.S. liq)	59.84
centimeters	meters	0.01	cubic feet	quarts (U.S. liq)	29.92
centimeters	miles	6.214 x 10 <sup>-6</sup>	cubic feet	ton (shipping)	0.025
centimeters	millimeters	10.0	cubic feet/min	cu cms/sec	472.0
centimeters	mils	393.7	cubic feet/min	gallons/sec	0.1247
centimeters	yards	1.094 x 10 <sup>-2</sup>	cubic feet/min	liters/sec	0.4720
centimeter-dynes	cm-grams	1.020 x 10 <sup>-3</sup>	cubic feet/min	pounds of water/min	62.43
centimeter-dynes	meter-kgs	1.020 x 10 <sup>-6</sup>	cubic feet/sec	million gals/day	0.646317
centimeter-dynes	pound-feet	7.376 x 10 <sup>-6</sup>	cubic feet/sec	gallons/min	448.831
centimeter-grams	cm-dynes	980.7	cubic inches	bushel	4.65 x 10 <sup>-4</sup>
centimeter-grams	meter-kgs	10 <sup>-5</sup>	cubic inches	cu cms (mL)	16.39
centimeter-grams	pound-feet	7.233 x 10 <sup>-5</sup>	cubic inches	cu feet	5.787 x 10 <sup>-4</sup>
centimeters of mercury	atmospheres	0.01316	cubic inches	cu meters	1.639 x 10 <sup>-5</sup>
centimeters of mercury	feet of water	0.4461	cubic inches	cu yards	2.143 x 10 <sup>-5</sup>
centimeters of mercury	kgs/sq meter	136.0	cubic inches	gallons	4.329 x 10 <sup>-3</sup>
centimeters of mercury	pounds/sq ft	27.85	cubic inches	liters	0.01639
centimeters of mercury	pounds/sq in	0.1934	cubic inches	mil-feet	1.061 x 10 <sup>5</sup>
centimeters/sec	feet/min	1.1969	cubic inches	pints (U.S. liq)	0.03463
centimeters/sec	feet/sec	0.03281	cubic inches	quarts (U.S. liq)	0.01732
centimeters/sec	kilometers/hr	0.036	cubic meters	bushels (dry)	28.38
centimeters/sec	knots	0.1943	cubic meters	cords	0.2759
centimeters/sec	meters/min	0.6	cubic meters	cu cms (mL)	10 <sup>6</sup>
centimeters/sec	miles/hr	0.02237	cubic meters	cu feet	35.31
centimeters/sec	miles/min	3.728 x 10 <sup>-4</sup>	cubic meters	cu inches	61,023.0
centimeters/sec/sec	feet/sec/sec	0.03281	cubic meters	cu yards	1,308.0
centimeters/sec/sec	kms/hr/sec	0.036	cubic meters	gallons (U.S. liq)	264.2
centimeters/sec/sec	meters/sec/sec	0.01	cubic meters	liters	1,000.0
centimeters/sec/sec	miles/hr/sec	0.02237	cubic meters	pints (U.S. liq)	2,113.0
Chain	Inches	792.0	cubic meters	quarts (U.S. liq)	1,057.0
Chain	meters	20.12	cubic yards	cu cms (mL)	7,646 x 10 <sup>5</sup>
Chains (surveyors' or Gunter's)	yards	22.0	cubic yards	cu feet	27.0
circular mils	sq cms	5.067 x 10 <sup>-4</sup>	cubic yards	cu inches	46,656.0
circular mils	sq mils	0.7854	cubic yards	cu meters	0.7646
circular mils	sq inches	7.854 x 10 <sup>-7</sup>	cubic yards	gallons (U.S. liq)	202.0
Circumference	Radians	6.283	cubic yards	liters	764.6
Cords	cord feet	8.0	cubic yards	pints (U.S. liq)	1,615.9
Cord feet	cu feet	16	cubic yards	quarts (U.S. liq)	807.9
Cord	cu meter	3.6245	cubic yards/min	cubic ft/sec	0.45
Cord (wood)	cu foot	128	cubic yards/min	gallons/sec	3.367
Cord	steres	3.625	cubic yards/min	liters/sec	12.74
Coulomb	Statcoulombs	2.998 x 10 <sup>9</sup>			
coulombs	faradays	1.036 x 10 <sup>-5</sup>			
coulombs/sq cm	coulombs/sq in	64.52			
coulombs/sq cm	coulombs/sq meter	10 <sup>4</sup>			
coulombs/sq in	coulombs/sq cm	0.1550			
coulombs/sq in	coulombs/sq meter	1,550.0			
coulombs/sq meter	coulombs/sq cm	10 <sup>-4</sup>			
coulombs/sq meter	coulombs/sq in	6.452 x 10 <sup>-4</sup>			
cubic centimeters (mL)	cu feet	3.531 x 10 <sup>-5</sup>			
cubic centimeters (mL)	cu inches	0.06102			
cubic centimeters (mL)	cu meters	10 <sup>-6</sup>			
cubic centimeters (mL)	cu yards	1.308 x 10 <sup>-6</sup>			
cubic centimeters (mL)	gallons (U.S. liq)	2.642 x 10 <sup>-4</sup>			
cubic centimeters (mL)	liters	0.001			
cubic centimeters (mL)	pints (U.S. liq)	2.113 x 10 <sup>-3</sup>			
cubic centimeters (mL)	quarts (U.S. liq)	1.057 x 10 <sup>-3</sup>			
cubic feet	bushels (dry)	0.8036			
cubic feet	cord (wood)	7.81 x 10 <sup>-3</sup>			
cubic feet	cu cms (mL)	28,320.0			

## D

To Convert	Into	Multiply By
Dalton	Gram	1.650 x 10 <sup>-24</sup>
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 x 10 <sup>-3</sup>
dekagrams	grams	10.0
dekaliters	liters	10.0
dekameters	meters	10.0



Drams (apothecaries' or troy)	ounces (avoidupois)	0.1371429	feet	yards	0.333
Drams (apothecaries' or troy)	ounces (troy)	0.125	feet of water	atmospheres	0.02950
Drams (U.S., fluid or apoth.)	cubic cm (mL)	3.6967	feet of water	in. of mercury	0.8826
drams	grams	1.7718	feet of water	kgs/sq cm	0.03048
drams	grains	27.3437	feet/min	kgs/sq meter	304.8
drams	ounces	0.0625	feet/min	pounds/sq ft	62.43
dram	mL	3.696	feet/min	pounds/sq in	0.4335
Dyne/cm	Erg/sq millimeter	0.01	feet/min	cms/sec	0.5080
Dyne/sq cm	Atmospheres	$9.869 \times 10^{-7}$	feet/min	feet/sec	0.01667
Dyne/sq cm	Inch of Mercury at 0°C	$2.953 \times 10^{-5}$	feet/min	kms/hr	0.01829
Dyne/sq cm	Inch of Water at 4° C	$4.015 \times 10^{-4}$	feet/sec	meters/min	0.3048
dynes	grams	$1.020 \times 10^{-3}$	feet/sec	miles/hr	0.01136
dynes	joules/cm	$10^{-7}$	feet/sec	miles/min	0.01136
dynes	joules/meter (newtons)	$10^{-5}$	feet/sec	cms/sec	30.48
dynes	kilograms	$1.020 \times 10^{-6}$	feet/sec/sec	kms/hr	1.097
dynes	poundals	$7.233 \times 10^{-5}$	feet/sec/sec	knots	0.5921
dynes	pounds	$2.248 \times 10^{-6}$	feet/sec/sec	meters/min	18.29
dynes/sq cm	bars	$10^6$	feet/sec/sec	miles/hr	0.6818
			feet/sec/sec	miles/min	0.01136
			feet/100 feet	cms/sec/sec	30.48
			Foot—candle	kms/hr/sec	1.097
			foot-pounds	meters/sec/sec	0.3048
			foot-pounds	miles/hr/sec	0.6818
			foot-pounds	per cent grade	1.0
			foot-pounds	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	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	$1.356 \times 10^{-3}$
			foot-pounds/sec	miles (U.S.)	0.125
			Furlongs	rods	40.0
			furlongs	feet	660.0
			furlongs	mile (sta.)	0.125
			furlongs		

<b>E</b>		
To Convert	Into	Multiply By
Eil	Cm	114.30
Eil	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	$10^{-10}$

<b>F</b>		
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	$1.2 \times 10^4$

<b>G</b>		
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	$10^{-5}$

## 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)	horsepower	0.9863
(542.5 ft lb/sec)	(550 ft lb/sec)	
horsepower	horsepower (metric)	1.014
(550 ft lb/sec)	(542.5 ft lb/sec)	
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

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	$9.654 \times 10^4$

## 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 <sup>7</sup>
joules/cm	joules/meter (newtons)	100
joules/cm	poundals	723.3
joules/cm	pounds	22.48

kilowatts	BTU/min	56.92
kilowatts	foot-lbs/min	4.426 x 10 <sup>4</sup>
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 x 10 <sup>13</sup>
kilowatt-hrs	foot-lbs	2.655 x 10 <sup>6</sup>
kilowatt-hrs	gram-calories	859,850.0
kilowatt-hrs	horsepower-hrs	1.341
kilowatt-hrs	joules	3.6 x 10 <sup>6</sup>
kilowatt-hrs	kg-calories	860.5
kilowatt-hrs	kg-meters	3.671 x 10 <sup>6</sup>
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

## 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 x 10 <sup>-4</sup>
kilograms	tons (short)	1.102 x 10 <sup>-3</sup>
kilograms/cu meter	grams/cu cm	0.001
kilograms/cu meter	pounds/cu ft	0.06243
kilograms/cu meter	pounds/cu in	3.613 x 10 <sup>-5</sup>
kilograms/cu meter	pounds/mil-foot	3.405 x 10 <sup>-10</sup>
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 x 10 <sup>-5</sup>
kilograms/sq meter	bars	98.07 x 10 <sup>-6</sup>
kilograms/sq meter	feet of water	3.281 x 10 <sup>-3</sup>
kilograms/sq meter	inches of mercury	2.896 x 10 <sup>-3</sup>
kilograms/sq meter	pounds/sq ft	0.2048
kilograms/sq meter	pounds/sq in	1.422 x 10 <sup>-3</sup>
kilograms/sq mm	kgs/sq meter	10 <sup>6</sup>
kilogram-calories	Btu	3.968
kilogram-calories	foot-pounds	3,088.0
kilogram-calories	hp-hrs	1.560 x 10 <sup>-3</sup>
kilogram-calories	joules	4,186.0
kilogram-calories	kg-meters	426.9
kilogram-calories	kilojoules	4.186
kilogram-calories	kilowatt-hrs	1.163 x 10 <sup>-3</sup>
kilogram-meters	Btu	9.294 x 10 <sup>-3</sup>
kilogram-meters	ergs	9.804 x 10 <sup>7</sup>
kilogram meters	foot-pounds	7.233
kilogram meters	joules	9.804
kilogram meters	kg-calories	2.342 x 10 <sup>-3</sup>
kilogram meters	kilowatt-hrs	2.723 x 10 <sup>-6</sup>
kilolines	maxwells	1,000.0
kiloliters	liters	1,000.0
kilometers	centimeters	10 <sup>5</sup>
kilometers	feet	3.281
kilometers	inches	3.937 x 10 <sup>4</sup>
kilometers	meters	1,000.0
kilometers	miles	0.6214
kilometers	millimeters	10 <sup>6</sup>
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
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

## L

To Convert	Into	Multiply By
league	miles (approx)	3.0
Light year	Miles	5.9 x 10 <sup>12</sup>
Light year	Kilometers	9.46091 x 10 <sup>12</sup>
lines/sq cm	gausses	1.0
lines/sq in	gausses	0.1550
lines/sq in	webers/sq cm	1.550 x 10 <sup>-9</sup>
lines/sq in	webers/sq in	10 <sup>-8</sup>
lines/sq in	webers/sq meter	1.550 x 10 <sup>-5</sup>
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 x 10 <sup>-3</sup>
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 x 10 <sup>-4</sup>
liters/min	gals/sec	4.403 x 10 <sup>-3</sup>
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

## M

To Convert	Into	Multiply By
maxwells	kilolines	0.001
maxwells	webers	10 <sup>-8</sup>
megalines	maxwells	10 <sup>6</sup>



megohms	microhms	10 <sup>12</sup>	miles/min	knots/min	0.8684
megohms	ohms	10 <sup>6</sup>	miles/min	miles/hr	60
meters	centimeters	100	mil-feet	cu inches	9.425 x 10 <sup>-6</sup>
meters	feet	3.281	milliers	kilograms	1,000.0
meters	inches	39.37	Millimicrons	meters	1 x 10 <sup>-9</sup>
meters	kilometers	0.001	Milligrams	grains	0.01543236
meters	miles (naut)	5.396 x 10 <sup>-4</sup>	milligrams	grams	0.001
meters	miles (stat)	6.214 x 10 <sup>4</sup>	milligrams/liter	parts/million	1.0
meters	millimeters	1,000.0	millihenries	henries	0.001
meters	yards	1.094	milliliters	liters	0.001
meters	varas	1.179	millimeters	centimeters	0.1
meters/min	cms/sec	1.667	millimeters	feet	3.281 x 10 <sup>-3</sup>
meters/min	feet/min	3.281	millimeters	inches	0.03937
meters/min	feet/sec	0.05468	millimeters	kilometers	10 <sup>-6</sup>
meters/min	kms/hr	0.06	millimeters	meters	0.001
meters/min	knots	0.03238	millimeters	miles	6.214 x 10 <sup>-7</sup>
meters/min	miles/hr	0.03728	millimeters	mils	39.37
meters/sec	feet/min	196.8	millimeters	yards	1.094 x 10 <sup>-3</sup>
meters/sec	feet/sec	3.281	million gals/day	cu ft/sec	1.54723
meters/sec	kilometers/hr	3.6	mils	centimeters	2.540 x 10 <sup>-3</sup>
meters/sec	kilometers/min	0.06	mils	feet	8.333 x 10 <sup>-5</sup>
meters/sec	miles/hr	2.237	mils	inches	0.001
meters/sec	miles/min	0.03728	mils	kilometers	2.540 x 10 <sup>-8</sup>
meters/sec/sec	cms/sec/sec	100	mils	yards	2.778 x 10 <sup>-5</sup>
meters/sec/sec	ft/sec/sec	3.281	miner's inches	cu ft/min	1.5
meters/sec/sec	kms/hr/sec	3.6	Minims (British)	cubic cm (mL)	0.059192
meters/sec/sec	miles/hr/sec	2.237	Minims (U.S., fluid)	cubic cm (mL)	0.061612
meters-kilograms	cm-dynes	9.807 x 10 <sup>7</sup>	minutes (angles)	degrees	0.01667
meter-kilograms	cm-grams	10 <sup>5</sup>	minutes (angles)	quadrants	1.852 x 10 <sup>-4</sup>
meter-kilograms	pound-feet	7.233	minutes (angles)	radians	2.909 x 10 <sup>-4</sup>
microfarad	farads	10 <sup>-6</sup>	minutes (angles)	seconds	60
micrograms	grams	10 <sup>-6</sup>	myriagrams	kilograms	10
microhms	megohms	10 <sup>-12</sup>	myriameters	kilometers	10
microhms	ohms	10 <sup>-6</sup>	myriawatts	kilowatts	10
microliters	liters	10 <sup>-6</sup>			
Microns	meters	1 x 10 <sup>-6</sup>			
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 x 10 <sup>5</sup>			
miles (statute)	feet	5.280			
miles (statute)	furlongs	8.0			
miles (statute)	inches	6.336 x 10 <sup>4</sup>			
miles (statute)	kilometers	1.609			
miles (statute)	meters	1,609.0			
miles (statute)	miles (naut)	0.8684			
miles (statute)	yards	1,760.0			
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			

## N

To Convert	Into	Multiply By
nepers	decibels	8.686
Newton	Dynes	1 x 10 <sup>5</sup>

## O

To Convert	Into	Multiply By
OHM (International)	OHM (absolute)	1.0005
ohms	megohms	10 <sup>-6</sup>
ohms	microhms	10 <sup>6</sup>
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 x 10 <sup>-5</sup>
ounces	tons (metric)	2.835 x 10 <sup>-5</sup>
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



<b>P</b>		
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/lmp. 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)	$4.1143 \times 10^{-4}$
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

<b>Q</b>		
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

<b>R</b>		
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

## S

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

square miles	sq yards	3.098 x 10 <sup>6</sup>
square miles	township	0.2777
square millimeters	circular mils	1,973.0
square millimeters	sq cms	0.01
square millimeters	sq feet	1.076 x 10 <sup>-5</sup>
square millimeters	sq inches	1.550 x 10 <sup>-3</sup>
square mils	circular mils	1.273
square mils	sq cms	6.452 x 10 <sup>-6</sup>
square mils	sq inches	10 <sup>6</sup>
square rods	sq yards	30.25
square rods	roods	0.025
square yards	acres	2.006 x 10 <sup>-4</sup>
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 x 10 <sup>-7</sup>
square yards	sq millimeters	8.361 x 10 <sup>5</sup>
square yards	sq rods	0.03305
steres	acres	0.27586

## 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

## V

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

## 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	$6.452 \times 10^{-4}$

## 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