

APPENDIX R

METRIC CONVERSION TABLE

Unit A Measure	To convert Unit A to B Measure multiply by:	To convert Unit B to A multiply by:	Unit B Measure
ACCELERATION			
Foot/second ²	0.3048	3.2808	Meter/second ²
ANGLES			
Mils (circular) true	0.0572	17.45	Degree, angular
Mils (circular) Russian	0.06	16.67	Degree, angular
Mils (circular) U.S. military	0.0562	17.78	Degree, angular
AREA			
Acre	4,047	2.471×10^{-4}	Meter ²
Acre	1.563×10^{-3}	640	Square miles
Acre	43,560		Square feet
Foot ²	0.0929	10.764	Meter ²
Inch ²	6.452	0.155	Centimeters ²
Mile ² (US Statute)	2,589,988	3.861×10^{-7}	Meter ²
Yard ²	0.8361	1.1960	Meter ²
BENDING MOMENT (Torque)			
Kilogram-force-meter	9.8067	0.102	Newton-meter
Pound-force-foot	1.356	0.7376	Newton-meter

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Unit A Measure	To convert Unit A to B Measure multiply by:	To convert Unit B to A multiply by:	Unit B Measure
CAPACITY (See Volume)			
DENSITY (See Mass/Volume)			
ENERGY (Includes Work)			
Foot-pound	0.001285	778.17	BTU
Foot-Pound	3.766×10^{-7}	2655224	Kilowatt-hours
Foot-pound-force	1.356	0.7376	Joule
Kilowatt-hour	3,600,000	2.778×10^{-7}	Joule
Kilowatt-hour	3412		BTU
Watt-second	1.000	1.000	Joule
FLOW (See Mass/Time or Volume/Time)			
FORCE			
Kilogram-force	9.8067	0.1020	Newton
Kip	4448	0.0002248	Newton
Pound-force (avoirdupois)	4.488	0.2248	Newton
FORCE/AREA (See Pressure)			
FORCE/LENGTH			
Pound-force/foot	14.59	0.06852	Newton/meter
LENGTH			
Angstrom	1.0×10^{-10}	1.0×10^{10}	Meter
Fathom	1.829	0.5468	Meter
Feet	0.3048	3.281	Meter
Feet	0.167	6	Fathoms
Inch	2.54	0.3937	Centimeter

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Mil	2.540×10^{-5}	39370.1	Meter
Mile – Nautical	1852.000	0.0005	Meter
Mile – Statute	1609	0.0006	Meter
Mile – Statute	0.869	1.152	U.S. Nautical Mile
Mile – Statute	5,280	1.894×10^{-4}	Feet
Mile-Statute	1.6093	.6214	kilometers
LIGHT			
Foot candle	10.76	0.09290	Lumen/meter ² (Lux)
MASS			
Grain	0.0648	15.43	Grams
Ounce (avdp)	0.02835	35.27	Kilogram
Ounce	.0625	16	Pound
Ounce (avdp)	437.5	0.002286	Grains
Ounce (troy)	480.0	0.00208	Grains
Pound (avdp)	0.0005	2240	Long or Gross Ton
Pound (avdp)	.4536	2.2046	Kilogram
Slug	14.59	0.06852	Kilogram
Ton (Long, 2240 lbs)	1016	0.0009842	Kilogram
Ton (Meter)	1000.00	0.001	Kilogram
Ton (Short, 2000 lbs)	907.2	0.001102	Kilogram
Ton (Net or short-tons)	0.8929	1.12	Ton (long or gross)

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MASS/AREA			
Pound-mass/foot ²	4.882	0.2048	Kilogram/meter ²
MASS/CAPACITY (See Mass/Volume)			
MASS/TIME (Includes Flow)			
Cubic feet per second	448.8	0.002228	US Gallons/min
Pound-mass per second	0.4536	2.205	Kilogram/second
Ton (short, mass) per hour	0.2520	3.968	Kilogram/second
MASS/VOLUME			
Pound-mass/foot ³	16.02	0.06243	Kilogram/meter ³
Pound-mass/inch ³	27680	3.613x10 ⁻⁵	Kilogram/meter ³
Ton (long, mass)/yard ³	1329	0.0007525	Kilogram/meter ³
POWER			
Foot-pound-force/hour	3.766x10 ⁻⁴	2655	Watt
Horsepower	550	0.001818	Foot-pounds per sec
Horsepower (550 ft-lb/s)	745.7	0.001341	Watt
Horsepower (water)	746.0	.001340	Watt

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Horsepower (US)	1.014	0.9863	Horsepower (metric)
PRESSURE OR STRESS (Force/Area)			
Atmospheres (mean) 4 ⁰ C.	33.90	0.02950	Feet of water
Atmospheres (mean)	14.70	0.0680	Pounds per sq inch
Atmospheres (mean)	29.92	0.03342	Inches of mercury
Feet of Water	62.43	0.01602	Pounds per sq foot
PSI	2.036	0.4912	Inches of mercury
SHIPPING			
Cubic feet	0.010	100.0	Register tons
Cubic feet	0.0250	40.0	US shipping tons
Cubic feet	0.0238	42.0	British shipping tons
SPEED (See Velocity)			
STRESS (See pressure)			
TEMPERATURE			
Degree Fahrenheit	$t^{\circ}\text{C} = (t^{\circ}\text{F} - 32)/1.8$	$t^{\circ}\text{F} = 1.8 t^{\circ}\text{C} + 32$	Degree Celsius
Degree Fahrenheit	-17.22	33	Degree Celsius
TORQUE (See Bending Moment)			
VELOCITY (Includes Speed)			
Feet/second	0.3048	3.281	Meter/second
Feet/section	.6818	1.467	Miles/hour

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Kilometer/hour	0.2778	3.600	Meter/second
Knot (Int'l)	0.5144	1.944	Meter/second
Miles/hour	1.467	0.6818	Feet/second
Miles/hour			Kilometers/hour
Miles/hour (statute)		1.151	knots
VOLUME			
Board foot	0.0024	423.8	Meter ³
Foot ³	0.0283	35.31	Meter ³
Foot ³	1728	0.000579	Inches ³
Foot ³	7.481	0.1337	Gallons (US)
Gallon (Canadian)	0.0046	219.97	Meter ³
Gallon (US)	0.0038	264.2	Meter ³
Gallon (US)	0.8327	1.201	Gallons (Imperial)
Gallon (US)	3.7853	0.2642	Liter
Inch ³	1.6387×10^{-5}	61,024	Meter ³
Liter	0.0010	1000	Meter ³
Ton (register)	2.832	0.3532	Meter ³
Yard ³	.7646	1.308	Meter ³
VOLUME/TIME (Includes Flow)			
Foot ³ /minute	4.719×10^{-4}	2,118.9	Meter ³ /second
Yard ³ /minute	0.0127	78.48	Meter ³ /second
Gallon (U.S. liquid)/minute	6.309×10^{-5}	15,850	Meter ³ /second

Unit A Measure	To convert Unit A to B Measure multiply by:	To convert Unit B to A multiply by:	Unit B Measure
WEIGHT, LINEAR			
Pounds/foot	1.488	0.672	Kilogram per meter
Pounds/yard	0.496	2.016	Kilogram per meter
WORK (See Energy)			

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