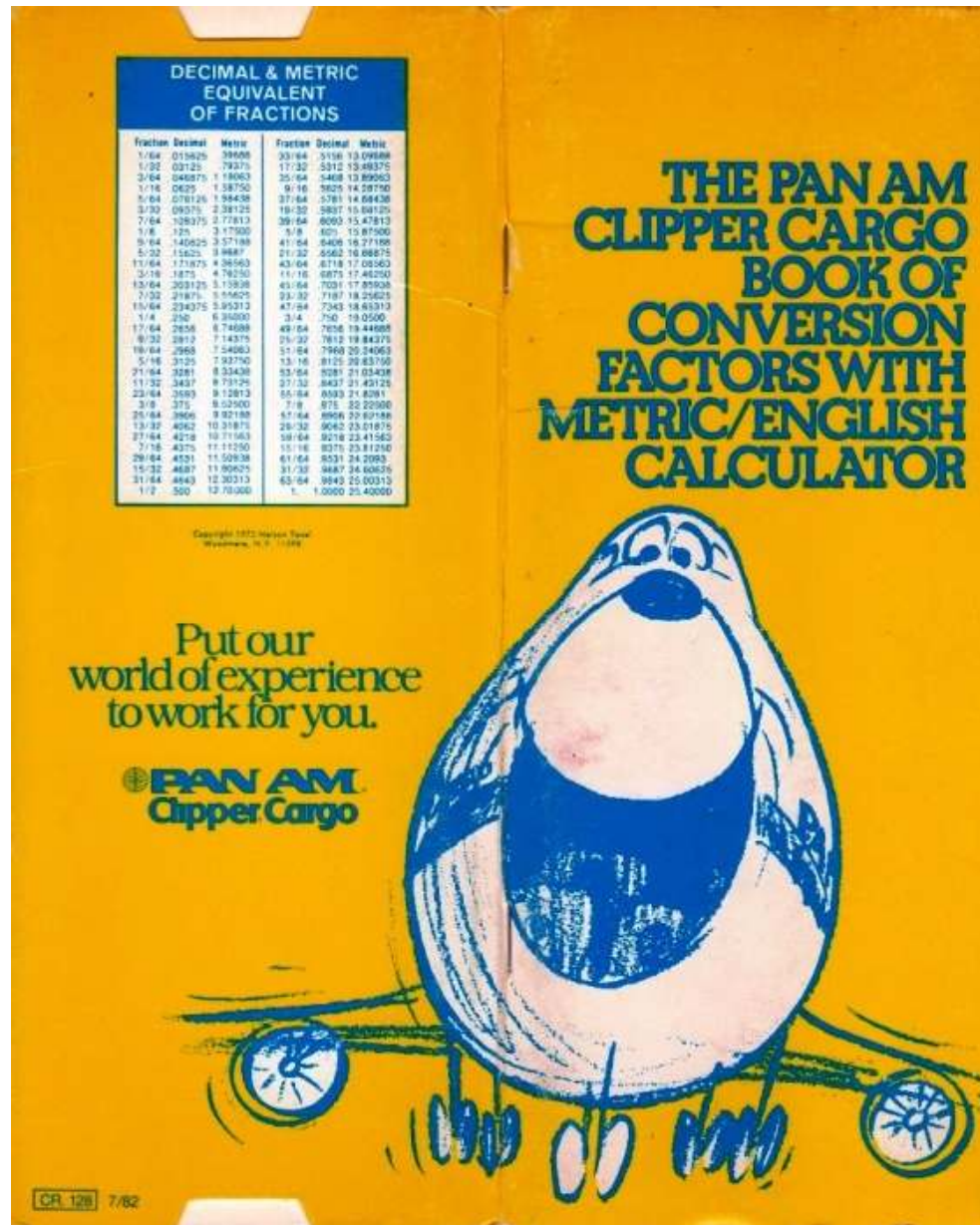




1969-2013

Servet BASOL Müzesi





ABOUT THIS PAN AM CLIFFER CARGO BOOKLET . . .
 We at Pan American World Airways thought you would find this booklet both useful and interesting, even if you do not use all 960 conversion factors every day. Charges for air freight are made on a "per kilogram" basis except that from within the USA the calculation may be made on either a "per kilogram" and/or a "per pound" basis. Fractions of a kg. or a lb. are rounded up to the next higher full kilogram or full pound. Here are the rules about Chargeable Weight and Volume Rate, as published in The Air Cargo Tariff.

3.3.2. CHARGEABLE WEIGHT
 The chargeable weight is the actual gross weight or volume weight, whichever is higher, provided that where a lower charge for a higher minimum weight applies, the lower shall be deemed as chargeable weight.
Example: A consignment weighing 35 kgs. is to be carried from New York to London. The under 45 kg. general cargo rate New York-London is 285 cents. The 45 kg. general cargo rate is 315 cents.
 35 kgs. x 285 = USD 99.75 45 kgs. x 315 = USD 141.75
 The minimum amount chargeable for 45 kgs. (315 cents per kg.) is less than the under 45 kg. rate (based on the actual weight of the consignment). Therefore, the charge of USD 99.75 will apply to this consignment.

3.3.3. VOLUME WEIGHT
 The volume of a consignment is established by applying the greatest width, the greatest length and the greatest height of the consignment or its packages. Consignments, the volume dimensions of which average more than 4000 cubic centimeters, the cubic inches per kilogram (160 cub. inches per pound), shall be charged on volume basis.
Exceptions:
 For transportation, it from Hong Kong to from India to the States and the Pacific from New Zealand to the States from 1400 onwards 10000 cubic centimeters equals 1 kg. applies.
1. Centimeter-kilograms
 In using linear measurements to obtain the volume a full or larger fraction of a centimeter shall be rounded up to the next higher whole centimeter, a smaller fraction to the next lower whole centimeter.
Example: The dimensions of a consignment being 152 x 156 x 141.4 cm. are rounded to 152 x 156 x 141 cm. The volume weight is established by dividing the volume in cubic centimeters by 2000, the resulting equivalent in kilogram being rounded up to the next higher full or half kilogram.
Example: 152 x 156 x 141 cm. give a volume of 3,563,352 cubic centimeters that divided by 2000 give 1,781.676 kg. rounded up to 1,782 kg.
2. Inches-kilograms
 In using linear measurements to obtain the volume a full or larger fraction of an inch shall be rounded up to the next higher whole inch, a smaller fraction shall be rounded down to the next lower whole inch.
Example: The dimensions of a consignment being 57-7/8 x 51-1/4 x 55-3/8 inches are rounded up to 58 x 52 x 56 inches. The volume weight is established by dividing the volume in cubic inches by 360.
Example: 58 x 52 x 56" give a volume of 174,784 cubic inches that divided by 360 give 485.511 kg. rounded up to 486 kg.
3. Inches-Pounds
 Having used linear measurements to obtain the volume as indicated in 2. above, the volume weight in pounds is obtained by dividing the volume in cubic inches by 168.
Example: 58 x 52 x 56" give a volume of 174,784 cubic inches that divided by 168 give 1,040.381 lbs. rounded up to 1,041 lbs.

Reprinted from Section 3.3 of the TACT 2013, issue 14, April 1969.
 Refer to latest issue of this section for any changes.
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TO CONVERT	MULTIPLY BY	TO OBTAIN
A		
abamperes	1 x 10 ¹¹	amperes
abcolombs	2.998 x 10 ¹⁸	statcoulombs
abfarads	1 x 10 ⁹	farads
abfarads	1 x 10 ⁹	microfarads
abhenries	1 x 10 ⁹	henries
abhenries	1 x 10 ⁹	millihenries
abohms	1 x 10 ⁻⁹	ohms
abohms	1 x 10 ⁻⁹	megohms
abvolts	1 x 10 ⁻⁸	volts
acres	1 x 10 ¹⁰	sq. chains (gunter's)
acres	1.60 x 10 ⁴	rods
acres	1 x 10 ⁸	sq. links
acres	4.047 x 10 ⁻¹	hectares or sq. hectometers
acres	4.35 x 10 ⁴	sq. ft.
acres	4.047 x 10 ³	sq. meters
acres	1.562 x 10 ⁻⁴	sq. miles
acres	4.840 x 10 ³	sq. yards
acre-feet	4.356 x 10 ⁴	cu. feet
acre-feet	3.259 x 10 ⁶	gallons
amperes/sq. cm.	6.452	amps/sq. in.
amperes/sq. cm.	1 x 10 ⁴	amps/sq. meter
amperes/sq. in.	1.550 x 10 ⁻¹	amps/sq. cm.
amperes/sq. in.	1.550 x 10 ³	amps/sq. meter
amperes/sq. meter	1.0 x 10 ⁻⁴	amps/sq. in.
amperes/sq. meter	6.452 x 10 ⁻⁴	amps/sq. in.
ampere-hours	3.600 x 10 ³	coulombs
ampere-hours	3.731 x 10 ⁻²	faradays
ampere-turns	1.257	gilberts
ampere-turns/cm.	2.540	amp-turns/in.
ampere-turns/cm.	1 x 10 ²	amp-turns/meter
ampere-turns/in.	3.937 x 10 ⁻¹	amp-turns/cm.
ampere-turns/in.	3.937 x 10 ³	amp-turns/meter
ampere-turns/in.	4.950 x 10 ⁻¹	gilberts/cm.
ampere-turns/meter	1 x 10 ⁻²	amp-turns/cm.
ampere-turns/meter	2.54 x 10 ⁻⁴	amp-turns/in.
ampere-turns/meter	1.257 x 10 ⁻³	gilberts/cm.
angstrom unit	3.937 x 10 ⁸	inches
angstrom unit	1 x 10 ⁻¹⁰	meters
angstrom unit	1 x 10 ⁻⁴	microns or (mu)
arcs	2.471 x 10 ⁻³	arcs (U.S.)
arcs	1.196 x 10 ⁶	sq. yards
arcs	1 x 10 ⁸	sq. meters
astronomical unit	1.496 x 10 ⁸	kilometers
atmospheres	7.348 x 10 ⁻²	tons/sq. in.
atmospheres	1.058	tons/sq. foot
atmospheres	7.6 x 10 ³	cms. of mercury (at 0°C.)
atmospheres	3.39 x 10 ³	ft. of water (at 4°C.)
atmospheres	2.992 x 10 ³	in. of mercury (at 0°C.)
atmospheres	7.6 x 10 ⁻¹	meters of mercury (at 0°C.)
atmospheres	7.6 x 10 ²	millimeters of mercury (at 0°C.)
atmospheres	1.0333	kg./sq. cm.
atmospheres	1.0333 x 10 ⁴	kg./sq. meter
atmospheres	1.47 x 10 ³	pounds/sq. in.
B		
barns (u.s., dry)	3.281	bushels
barns (u.s., dry)	7.056 x 10 ²	cu. inches
barns (u.s., dry)	1.05 x 10 ³	quarts (dry)
barns (u.s., liquid)	3.15 x 10 ³	gallons
barns (oil)	4.2 x 10 ³	gallons (oil)
bars	9.869 x 10 ³	atmospheres
bars	1 x 10 ⁶	dynes/sq. cm.

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bars	1.020 x 10 ⁴	kgs./sq. meter	centimeters of mercury	2.785 x 10 ¹	pounds/sq. ft.
bars	2.089 x 10 ⁹	pounds/sq. ft.	centimeters of mercury	1.934 x 10 ⁻¹	pounds/sq. in.
bars	1.45 x 10 ¹	dynes/sq. in.	centimeters/sec.	1.969	feet/min.
barye	1.00	meters	centimeters/sec.	3.281 x 10 ⁻²	feet/sec.
bolt (u.s., cloth)	3.6576 x 10 ¹	liter-atmospheres	centimeters/sec.	3.6 x 10 ⁻²	kilometers/hr.
btu	1.0409 x 10 ¹	ergs	centimeters/sec.	1.943 x 10 ⁻¹	knots
btu	1.0550 x 10 ¹⁰	foot-pounds	centimeters/sec.	6.0 x 10 ⁻¹	meters/min.
btu	7.7816 x 10 ²	gram-calories	centimeters/sec.	2.237 x 10 ⁻²	miles/hr.
btu	2.52 x 10 ²	horsepower-hours	centimeters/sec.	3.728 x 10 ⁻⁴	miles/min.
btu	3.927 x 10 ⁻⁴	joules	centimeters/sec./sec.	3.281 x 10 ⁻²	ft./sec./sec.
btu	1.055 x 10 ³	kilogram-calories	centimeters/sec./sec.	3.6 x 10 ⁻²	kms./hr./sec.
btu	2.52 x 10 ⁻¹	kilogrammeters	centimeters/sec./sec.	1.0 x 10 ⁻²	meters/sec./sec.
btu	1.0758 x 10 ²	kilowatt-hours	centimeters/sec./sec.	2.237 x 10 ⁻¹	miles/hr./sec.
btu/hr.	2.928 x 10 ⁻⁴	ft.-pounds/sec.	centipoise	1.0 x 10 ⁻²	gr./cm.-sec.
btu/hr.	7.0 x 10 ⁻²	gram-cal./sec.	centipoise	6.72 x 10 ⁻⁴	pound/ft.-sec.
btu/hr.	3.929 x 10 ⁻⁴	horsepower	centipoise	2.4	pound/ft.-hr.
btu/hr.	2.931 x 10 ⁻¹	watts	chains (gunters)	7.92 x 10 ²	inches
btu/min.	1.296 x 10 ¹	ft.-pounds/sec.	chains (gunters)	2.012 x 10 ¹	meters
btu/min.	2.356 x 10 ⁻²	horsepower	chains (gunters)	2.2 x 10 ¹	yards
btu/min.	1.757 x 10 ⁻¹	kilowatts	circular mils	5.067 x 10 ⁻⁴	sq. cm.
btu/min.	1.757 x 10 ¹	watts	circular mils	7.854 x 10 ⁻¹	sq. mils
btu/sq. ft./min.	1.22 x 10 ⁻¹	watts/sq. in.	circular mils	7.854 x 10 ⁻⁷	sq. inches
bucket (br. dry)	1.8184 x 10 ⁴	cubic cm.	circumference	6.283	radians
bushels	1.2445	cubic ft.	cords	8.0	cord ft.
bushels	2.1504 x 10 ³	cubic in.	cord ft.	1.6 x 10 ¹	cubic ft.
bushels	3.524 x 10 ⁻²	cubic meters	coulombs	2.998 x 10 ⁶	statcoulombs
bushels	3.524 x 10 ¹	liters	coulombs	1.036 x 10 ⁻⁵	faradays
bushels	4.0	pecks	coulombs/sq. cm.	6.452	coulombs/sq. in.
bushels	6.4 x 10 ¹	pints (dry)	coulombs/sq. cm.	1.0 x 10 ⁴	coulombs/sq. meter
bushels	3.2 x 10 ¹	quarts (dry)	coulombs/sq. in.	1.550 x 10 ⁻¹	coulombs/sq. cm.
			coulombs/sq. in.	1.550 x 10 ³	coulombs/sq. meter
			coulombs/sq. meter	1.0 x 10 ⁻⁴	coulombs/sq. cm.
			coulombs/sq. meter	6.452 x 10 ⁻⁴	coulombs/sq. in.
calories, gram (mean)	3.9685 x 10 ⁻³	btu (mean)	cubic centimeters	3.531 x 10 ⁻⁵	cubic ft.
candle/sq. cm.	3.146	lamberts	cubic centimeters	6.102 x 10 ⁻²	cubic in.
candle/sq. in.	4.870 x 10 ⁻¹	lamberts	cubic centimeters	1.0 x 10 ⁻⁴	cubic meters
centares	1.0	sq. meters	cubic centimeters	1.308 x 10 ⁻⁴	cubic yards
centigrade(degrees)	(°C x 9/5) + 32	fahrenheit(degrees)	cubic centimeters	2.642 x 10 ⁻⁴	gallons (u.s. liquid)
centigrade(degrees)	°C + 273.18	kelvin (degrees)	cubic centimeters	1.0 x 10 ⁻³	liters
centigrams	1. x 10 ⁻²	grams	cubic centimeters	2.113 x 10 ⁻³	pints (u.s. liquid)
centiliters	3.382 x 10 ⁻¹	ounce (fluid) u.s.	cubic centimeters	1.057 x 10 ⁻³	quarts (u.s. liquid)
centiliters	6.103 x 10 ⁻¹	cubic in.	cubic centimeters	8.036 x 10 ⁻¹	bushels (dry)
centiliters	2.705	drams	cubic feet	2.8320 x 10 ⁴	cu. cms.
centiliters	1.0 x 10 ⁻²	liters	cubic feet	1.728 x 10 ³	cu. inches
centimeters	3.281 x 10 ⁻²	feet	cubic feet	2.832 x 10 ⁻²	cu. meters
centimeters	3.937 x 10 ⁻¹	inches	cubic feet	3.704 x 10 ⁻²	cu. yards
centimeters	1. x 10 ⁻¹	kilometers	cubic feet	7.48052	gallons (u.s. liquid)
centimeters	1. x 10 ⁻¹	meters	cubic feet	2.832 x 10 ¹	liters
centimeters	6.214 x 10 ⁻⁴	miles	cubic feet	5.984 x 10 ¹	pints (u.s. liquid)
centimeters	1. x 10 ¹	millimeters	cubic feet	2.992 x 10 ¹	quarts (u.s. liquid)
centimeters	3.937 x 10 ²	mils	cubic feet/min.	4.72 x 10 ³	cu. cms./sec.
centimeters	1.094 x 10 ⁻²	yards	cubic feet/min.	1.247 x 10 ⁻¹	gallons/sec.
centimeters	1. x 10 ⁴	microns	cubic feet/min.	4.720 x 10 ⁻¹	liters/sec.
centimeters	1. x 10 ⁸	angstrom units	cubic feet/min.	6.243 x 10 ¹	pounds water/min.
centimeter-dynes	1.020 x 10 ⁻³	cn-grams	cubic feet/sec.	6.46317 x 10 ⁻¹	million gals./day
centimeter-dynes	1.020 x 10 ⁻⁸	meter-kgs.	cubic feet/sec.	4.48831 x 10 ²	gallons/min.
centimeter-dynes	7.376 x 10 ⁻⁹	pound-ft.	cubic inches	1.639 x 10 ¹	cu. cms.
centimeter-grams	9.807 x 10 ²	cm.-dynes	cubic inches	5.787 x 10 ⁻⁴	cu. ft.
centimeter-grams	1. x 10 ⁻⁵	meter-kgs.	cubic inches	1.639 x 10 ⁻³	cu. meters
centimeter-grams	7.233 x 10 ⁻⁵	pound-ft.	cubic inches	2.143 x 10 ⁻³	cu. yards
centimeters of mercury	1.316 x 10 ⁻²	atmospheres	cubic inches	4.329 x 10 ⁻³	gallons
centimeters of mercury	4.461 x 10 ⁻¹	ft. of water	cubic inches	1.639 x 10 ⁻²	liters
centimeters of mercury	1.36 x 10 ²	kgs./sq. meter	cubic inches	3.463 x 10 ⁻²	pints (u.s. liquid)
			cubic inches	1.732 x 10 ⁻²	quarts (u.s. liquid)
			cubic meters	2.838 x 10 ¹	bushels (dry)
			cubic meters	1.0 x 10 ⁴	cu. cms.
			cubic meters	3.531 x 10 ¹	cu. ft.



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cubic meters	6.1023×10^4	cu. inches	ergs	1.0×10^{-7}	joules
cubic meters	1.358	cu. yards	ergs	2.389×10^{-10}	kg.-calories
cubic meters	2.642×10^6	gallons (u.s. liquid)	ether	1.020×10^{-8}	kg.-meters
cubic meters	1.0×10^3	liters	ergs	2.773×10^{-10}	kilowatt-hrs.
cubic meters	2.113×10^5	pints (u.s. liquid)	ergs	2.773×10^{-10}	watt-hrs.
cubic meters	1.057×10^5	quarts (u.s. liquid)	ergs/sec.	5.668×10^{-9}	btu/min.
cubic yards	7.646×10^5	cu. cms.	ergs/sec.	4.436×10^{-9}	ft.-lbs./min.
cubic yards	2.7×10^4	cu. ft.	ergs/sec.	7.3756×10^{-9}	ft.-lbs./sec.
cubic yards	4.6595×10^4	cu. inches	ergs/sec.	1.341×10^{-10}	horsepower
cubic yards	7.646×10^{-1}	cu. meters	ergs/sec.	1.433×10^{-11}	kg.-calories/min.
cubic yards	2.02×10^3	gallons (u.s. liquid)	ergs/sec.	$1. \times 10^{-10}$	kilowatts
cubic yards	7.646×10^2	liters			
cubic yards	1.6159×10^5	pints (u.s. liquid)			
cubic yards	8.079×10^4	quarts (u.s. liquid)			
cubic yards/min.	4.5×10^{-1}	cubic ft./sec.			
cubic yards/min.	3.367	gallons/sec.			
cubic yards/min.	1.274×10^1	liters/sec.			
D					
dollars	1.650×10^{-14}	grams	farads	$1. \times 10^4$	microfarads
days	8.64×10^5	seconds	faraday/sec.	9.65×10^4	ampere (absolute)
days	1.44×10^3	minutes	faradays	2.68×10^5	ampere-hours
days	2.4×10^2	hours	fathoms	1.8288	coulombs
decigramme	1.0×10^{-4}	grams	fathoms	6.0	feet
deciliters	1.0×10^{-1}	liters	feet	3.048×10^1	centimeters
decimeters	1.0×10^{-1}	meters	feet	3.048×10^{-4}	kilometers
degrees (angle)	1.111×10^{-2}	quadrants	feet	3.048×10^{-1}	meters
degrees (angle)	1.745×10^{-2}	radians	feet	1.645×10^{-4}	miles (naut.)
degrees (angle)	3.6×10^2	seconds	feet	1.894×10^{-4}	miles (stat.)
degrees/sec.	1.745×10^{-2}	radians/sec.	feet	3.048×10^2	millimeters
degrees/sec.	1.667×10^{-1}	revolutions/min.	feet	1.2×10^4	milis
degrees/sec.	2.778×10^{-2}	revolutions/sec.	feet of water	2.95×10^1	atmospheres
dekagrams	1.0×10^1	grams	feet of water	8.826×10^{-1}	in. of mercury
dekalliters	1.0×10^1	liters	feet of water	3.048×10^{-3}	kg./sq. cm.
dekameters	1.0×10^1	meters	feet of water	3.048×10^2	kg./sq. meter
drams (apoth. or troy)	1.3714×10^{-1}	ounces (avdp.)	feet of water	6.243×10^1	pounds/sq. ft.
drams (apoth. or troy)	1.25×10^{-1}	ounces (troy)	feet of water	4.33×10^{-1}	pounds/sq. in.
drams (u.s. fluid or apoth.)	3.6967	cubic cm.	feet/min.	5.080×10^{-1}	cms./sec.
drams	1.7718	grams	feet/min.	1.667×10^{-4}	feet/sec.
drams	2.7344×10^1	grains	feet/min.	1.829×10^{-4}	kms./hr.
drams	6.25×10^{-4}	ounces	feet/min.	5.048×10^{-4}	meters/min.
dynes/sq. cm.	1.0×10^{-4}	ergs/sec. millimeter	feet/min.	1.136×10^{-4}	miles/hr.
dynes/sq. cm.	9.869×10^{-1}	atmospheres	feet/sec.	3.048×10^1	cms./sec.
dynes/sq. cm.	2.953×10^{-5}	in. of mercury (at 0°C.)	feet/sec.	1.097	kms./hr./sec.
dynes/sq. cm.	4.015×10^{-4}	in. of water (at 4°C.)	feet/sec./sec.	3.048×10^{-1}	meters/sec./sec.
dynes	1.020×10^{-4}	grams	feet/sec./sec.	6.318×10^{-1}	miles/hr./sec.
dynes	1.0×10^{-7}	joules/cm.	feet/100 feet	1.0	per cent grade
dynes	1.0×10^{-9}	joules/meter (newtons)	foot-candle	1.0764×10^1	lumen/sq. meter
dynes	1.020×10^{-4}	kilograms	foot-candle	1.0764×10^1	lux
dynes	7.233×10^{-1}	poundals	foot-pounds	1.286×10^1	btu
dynes	2.248×10^{-4}	pounds	foot-pounds	1.356×10^1	ergs
dynes/sq. cm.	1.0×10^{-4}	bars	foot-pounds	3.241×10^{-1}	gram-calories
E			foot-pounds	5.050×10^{-9}	horsepower-hrs.
ell	1.1430×10^2	cm.	foot-pounds	1.356	joules
ell	4.5×10^1	inches	foot-pounds	3.241×10^{-4}	kg.-calories
em, pica	1.67×10^{-1}	inch	foot-pounds/min.	1.383×10^{-1}	kg.-meters
em, pica	4.233×10^{-1}	cm.	foot-pounds/min.	3.756×10^{-1}	kilowatt-hrs.
erg/sec.	1.0	dyne-cm./sec.	foot-pounds/min.	1.286×10^{-3}	btu/min.
ergs	9.486×10^{-11}	btu	foot-pounds/min.	1.667×10^{-2}	foot-pounds/sec.
ergs	1.0	dyne-centimeters	foot-pounds/min.	3.030×10^{-4}	horsepower
ergs	7.376×10^{-4}	foot-pounds	foot-pounds/min.	3.241×10^{-4}	kg.-calories/min.
ergs	2.389×10^{-8}	gram-calories	foot-pounds/sec.	2.260×10^{-6}	kilowatts
ergs	1.020×10^{-6}	gram-cms.	foot-pounds/sec.	4.6258	btu/hr.
ergs	3.7260×10^{-10}	horsepower-hrs.	foot-pounds/sec.	7.717×10^{-4}	btu/min.
			foot-pounds/sec.	1.818×10^{-4}	horsepower
			foot-pounds/sec.	1.945×10^{-4}	kg.-calories/min.
			foot-pounds/sec.	1.356×10^{-9}	kilowatts



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furlongs	1.25×10^{-1}	miles (u.s.)	gram-calories/sec.	1.4286×10^1	btu/hr.
furlongs	4.0×10^1	rods	gram-centimeters	9.297×10^{-9}	btu
furlongs	6.6×10^2	feet	gram-centimeters	9.807×10^2	ergs
furlongs	2.0117×10^3	meters	gram-centimeters	9.807×10^{-3}	joules
	G		gram-centimeters	2.343×10^{-8}	kg.-calories
			gram-centimeters	1.0×10^{-8}	kg.-meters
gallons	3.785×10^3	cu. cms.		H	
gallons	1.337×10^{-1}	cu. feet	hand	1.016×10^1	cm.
gallons	2.31×10^2	cu. inches	hectares	2.471	acres
gallons	3.785×10^{-3}	cu. meters	hectares	1.076×10^8	sq. feet
gallons	4.951×10^{-3}	cu. yards	hectograms	1.0×10^2	grams
gallons	3.785	liters	hectoliters	1.0×10^2	liters
gallons (liq. br. imp.)	1.20095	gallons (u.s. liquid)	hectometers	1.0×10^2	meters
gallons (u.s.)	8.3267×10^{-1}	gallons (imp.)	hectowatts	1.0×10^2	watts
gallons of water	8.337	pounds of water	henries	1.0×10^9	millihenries
gallons/min.	2.228×10^{-3}	cu. feet/sec.	hogsheads (british)	1.0114×10^1	cubic ft.
gallons/min.	6.308×10^{-2}	liters/sec.	hogsheads (u.s.)	8.42184	cubic ft.
gallons/min.	8.0208	cu. feet/hr.	hogsheads (u.s.)	6.3×10^1	gallons (u.s.)
gausses	6.452	lines/sq. in.	horsepower	4.244×10^1	btu/min.
gausses	1.0×10^{-4}	webers/sq. cm.	horsepower	3.3×10^4	foot-lbs./min.
gausses	6.452×10^{-4}	webers/sq. in.	horsepower	5.50×10^2	foot-lbs./sec.
gausses	1.0×10^{-4}	webers/sq. meter	horsepower (metric)	9.863×10^{-1}	horsepower
gausses	7.958×10^{-1}	amp.-turn/cm.	horsepower	1.014	horsepower (metric)
gausses	1.0	gilbert/cm.	horsepower	1.068×10^1	kg.-calories/min.
gilberts	7.958×10^{-1}	ampere-turns	horsepower	7.457×10^{-1}	kilowatts
gilberts/cm.	7.958×10^{-1}	ampere-turns/cm.	horsepower	7.457×10^2	watts
gilberts/cm.	2.021	ampere-turns/in.	horsepower (boiler)	3.352×10^4	btu/hr.
gilberts/cm.	7.958×10^1	ampere-turns/meter	horsepower (boiler)	9.803	kilowatts
		cubic cm.	horsepower-hours	2.547×10^3	btu
gills (british)	1.4207×10^2	cubic cm.	horsepower-hours	2.6845×10^{13}	ergs
gills (u.s.)	1.18295×10^2	liters	horsepower-hours	1.98×10^6	foot-lbs.
gills (u.s.)	1.183×10^{-1}	liters	horsepower-hours	6.4119×10^8	gram-calories
gills (u.s.)	2.5×10^{-1}	pints (liq.)	horsepower-hours	2.684×10^4	joules
grade	1.571×10^{-2}	radian	horsepower-hours	6.417×10^2	kg.-calories
grains	3.657×10^{-2}	drams (avdp.)	horsepower-hours	2.737×10^5	kg.-meters
grains (troy)	1.0	grains (avdp.)	horsepower-hours	7.457×10^{-1}	kilowatt-hrs.
grains (troy)	6.48×10^{-2}	grains (avdp.)	hours	4.167×10^{-2}	days
grains (troy)	2.0833×10^{-3}	ounces (avdp.)	hours	5.952×10^{-1}	weeks
grains (troy)	4.167×10^{-2}	pennyweight (troy)	hours	3.6×10^2	seconds
grains/u.s. gallon	1.7118×10^1	parts/million	hundredwghts(long)	1.12×10^2	pounds
grains/u.s. gallon	1.4286×10^2	gallons	hundredwghts(long)	5.0×10^{-1}	tons (long)
grains/imp. gallon	1.4286×10^1	parts/million	hundredwghts(long)	5.08023×10^1	kilograms
grams	9.807×10^2	dynes	hundredwghts(short)	4.53592×10^{-2}	tons (metric)
grams	1.543×10^1	grains (troy)	hundredwghts(short)	4.46429×10^{-2}	tons (long)
grams	9.807×10^{-5}	joules/cm.	hundredwghts(short)	4.53592×10^1	kilograms
grams	9.807×10^{-3}	joules/meter (newtons)		I	
grams	1.0×10^{-3}	kilograms	inches	2.540	centimeters
grams	1.0×10^3	milligrams	inches	2.540×10^{-2}	meters
grams	3.527×10^{-2}	ounces (avdp.)	inches	1.578×10^{-3}	miles
grams	3.215×10^{-2}	ounces (troy)	inches	2.54×10^1	millimeters
grams	7.093×10^{-2}	poundals	inches	1.0×10^3	mils
grams	2.205×10^{-3}	pounds	inches	2.778×10^{-2}	yards
grams/cm.	5.6×10^{-1}	pounds/in.	inches	2.54×10^8	angstrom units
grams/cu. cm.	6.243×10^1	pounds/cu. ft.	inches	5.0505×10^{-1}	rods
grams/cu. cm.	3.613×10^{-2}	pounds/cu. in.	inches of mercury	3.342×10^{-2}	atmospheres
grams/cu. cm.	3.405×10^{-2}	pounds/mil-foot	inches of mercury	1.133	feet of water
grams/liter	5.8417×10^1	grains/gal.	inches of mercury	3.453×10^{-2}	kgs./sq. cm.
grams/liter	8.345	pounds/1,000 gal.	inches of mercury	3.453×10^2	kgs./sq. meter
grams/liter	6.2427×10^{-2}	pounds/cu. ft.	inches of mercury	7.073×10^1	pounds/sq. ft.
grams/sq. cm.	2.0481	pounds/sq. ft.	inches of mercury	4.912×10^{-1}	pounds/sq. in.
gram-calories	3.9683×10^{-3}	btu	in. of water (at 4°C.)	2.458×10^{-3}	atmospheres
gram-calories	4.184×10^7	ergs	in. of water (at 4°C.)	7.355×10^{-2}	inches of mercury
gram-calories	3.086	foot-pounds	in. of water (at 4°C.)	2.54×10^{-3}	kgs./sq. cm.
gram-calories	1.5596×10^{-4}	horsepower-hrs.	in. of water (at 4°C.)	5.781×10^{-1}	ounces/sq. in.
gram-calories	1.162×10^{-4}	kilowatt-hrs.	in. of water (at 4°C.)	5.204	pounds/sq. ft.
gram-calories	1.162×10^{-2}	watt-hrs.	in. of water (at 4°C.)	3.613×10^{-2}	pounds/sq. in.



TO CONVERT	MULTIPLY BY	TO OBTAIN	TO CONVERT	MULTIPLY BY	TO OBTAIN
liters	1.308×10^{-3}	cu. yards	miles (statute)	1.609×10^4	centimeters
liters	2.642×10^{-1}	gallons (u.s. liquid)	miles (statute)	5.280×10^3	feet
liters	2.113	pints (u.s. liquid)	miles (statute)	6.336×10^4	inches
liters	1.057	quarts (u.s. liquid)	miles (statute)	1.609	kilometers
liters/min.	5.886×10^{-4}	cu. ft./sec.	miles (statute)	1.609×10^3	meters
liters/min.	4.403×10^{-3}	gals./sec.	miles (statute)	8.684×10^{-1}	miles (nautical)
$\log_{10} n$	2.303	In n	miles (statute)	1.760×10^3	yards
In n	4.343×10^{-1}	$\log_{10} n$	miles (statute)	1.69×10^{-13}	light years
lumen	7.958×10^{-2}	spherical candle power	miles/hr.	4.470×10^1	cms./sec.
lumen/sq. ft.	1.0	foot-candles	miles/hr.	8.8×10^1	ft./min.
lumen/sq. ft.	1.076×10^1	lumen-sq. meter	miles/hr.	1.467	ft./sec.
lux	9.29×10^{-2}	foot-candles	miles/hr.	1.6093	kms./hr.
	M		miles/hr.	2.682×10^{-2}	kms./min.
maxwells	1.0×10^{-3}	kilolines	miles/hr.	8.684×10^{-1}	knots
maxwells	1.0×10^{-9}	webers	miles/hr.	2.682×10^1	meters/min.
megalines	1.0×10^6	maxwells	miles/hr./sec.	1.667×10^{-2}	miles/min.
megohms	1.0×10^{12}	microhms	miles/hr./sec.	4.47×10^1	cms./sec.
megohms	1.0×10^6	ohms	miles/hr./sec.	1.467	ft./sec./sec.
megmhos/cubic cm.	1.0×10^{-3}	abmhos/cubic cm.	miles/hr./sec.	1.6093	kms./hr./sec.
megmhos/cubic cm.	2.54	megmhos/cubic in.	miles/hr./sec.	4.47×10^{-1}	meters/sec./sec.
megmhos/cubic cm.	1.662×10^{-1}	mhos/ml. ft.	miles/min.	2.682×10^1	cms./sec.
megmhos/in. cube	3.937×10^{-1}	megmhos/cubic cm.	miles/min.	8.8×10^1	feet/sec.
meters	1.0×10^{10}	angstrom units	miles/min.	1.6093	kms./min.
meters	1.0×10^2	centimeters	meters/min.	8.684×10^{-1}	knots/min.
meters	5.4681×10^{-1}	fathoms	meters	6.0×10^1	miles/hr.
meters	3.281	feet	meters	1.0×10^3	kilograms
meters	3.937×10^1	inches	meters	1.0×10^{-9}	meters
meters	1.0×10^{-3}	kilometers	meters	1.5432×10^{-2}	grains
meters	5.400×10^{-4}	miles (nautical)	meters	1.0×10^{-3}	grams
meters	6.214×10^{-4}	miles (statute)	meters	1.0	parts/million
meters	1.0×10^3	millimeters	meters	1.0×10^{-3}	henries
meters	1.094	yards	meters	1.0×10^{-3}	liters
meters/min.	1.667	cms./sec.	meters	1.0×10^{-1}	centimeters
meters/min.	3.281	feet/min.	meters	3.281×10^{-3}	feet
meters/min.	5.468×10^{-2}	feet/sec.	meters	3.937×10^{-2}	inches
meters/min.	6.0×10^{-2}	kms./hr.	meters	1.0×10^{-4}	kilometers
meters/min.	3.240×10^{-2}	knots	meters	1.0×10^{-3}	meters
meters/min.	3.728×10^{-2}	miles/hr.	meters	6.214×10^{-7}	miles
meters/sec.	1.968×10^2	feet/min.	meters	3.937×10^1	miis
meters/sec.	3.281	feet/sec.	meters	1.094×10^{-3}	yards
meters/sec.	3.6	kilometers/hr.	meters	1.54723	cu. ft./sec.
meters/sec.	6.0×10^{-2}	kilometers/min.	meters	2.54×10^{-3}	centimeters
meters/sec.	2.237	miles/hr.	meters	8.333×10^{-4}	feet
meters/sec.	3.728×10^{-2}	miles/min.	meters	1.0×10^{-3}	inches
meters/sec./sec.	1.0×10^1	cms./sec./sec.	meters	2.54×10^{-4}	kilometers
meters/sec./sec.	3.281	ft./sec./sec.	meters	2.778×10^{-5}	yards
meters/sec./sec.	3.6	kms./hr./sec.	miner's inches	1.5	cu. ft./min.
meters/sec./sec.	2.237	miles/hr./sec.	minims (british)	5.9192×10^{-2}	cubic cm.
meter-kilograms	9.807×10^2	cm.-dynes	minims (u.s. fluid)	6.1612×10^{-2}	cubic cm.
meter-kilograms	1.0×10^3	cm.-grams	minutes (angles)	1.667×10^{-3}	degrees
meter-kilograms	7.233	pound-feet	minutes (angles)	1.852×10^{-4}	quadrants
microfarads	1.0×10^{-15}	abfarads	minutes (angles)	2.909×10^{-4}	radians
microfarads	1.0×10^{-6}	farads	minutes (angles)	6.0×10^1	seconds
microfarads	9.0×10^5	statfarads	minutes (time)	9.9206×10^{-5}	weeks
micrograms	1.0×10^{-6}	grams	minutes (time)	6.944×10^{-4}	days
microhms	1.0×10^9	abohms	minutes (time)	1.667×10^{-2}	hours
microhms	1.0×10^{-12}	megohms	minutes (time)	6.0×10^1	seconds
microhms	1.0×10^{-6}	ohms	myriagrams	1.0×10^1	kilograms
microliters	1.0×10^{-6}	liters	myriameters	1.0×10^1	kilometers
micromicrons	1.0×10^{-12}	meters	myriawatts	1.0×10^1	kilowatts
microns	1.0×10^{-6}	meters		N	
miles (nautical)	6.076×10^3	feet	nails	2.25	inches
miles (nautical)	1.852	kilometers	newtons	1.0×10^5	dynes
miles (nautical)	1.852×10^3	meters		O	
miles (nautical)	1.1516	miles (statute)	ohm (international)	1.0005	ohm (absolute)
miles (nautical)	2.0254×10^3	yards	ohms	1.0×10^{-4}	megohms

TO CONVERT	MULTIPLY BY	TO OBTAIN
watts	7.378×10^{-1}	ft.-lbs./sec.
watts	1.341×10^{-3}	horsepower
watts	1.36×10^{-3}	horsepower (metric)
watts	1.433×10^{-2}	kg.-calories/min.
watts	1.0×10^{-3}	kilowatts
watts (abs.)	1.0	joules/sec.
watt-hours	3.413	btu
watt-hours	3.6×10^6	ergs
watt-hours	2.656×10^3	foot-lbs.
watt-hours	8.605×10^3	gram-calories
watt-hours	1.341×10^{-1}	horsepower-hours
watt-hours	8.605×10^{-1}	kilogram-calories
watt-hours	3.672×10^3	kilogram-meters
watt-hours	1.0×10^{-3}	kilowatt-hours
watt (international)	1.000165	watt (absolute)
webers	1.0×10^8	maxwells
webers	1.0×10^8	kilolines
webers/sq. in.	1.55×10^7	gausses
webers/sq. in.	1.0×10^8	lines/sq. in.
webers/sq. in.	1.55×10^{-1}	webers/sq. cm.
webers/sq. in.	1.55×10^3	webers/sq. meter
webers/sq. meter	1.0×10^4	gausses
webers/sq. meter	6.452×10^4	lines/sq. in.
webers/sq. meter	1.0×10^{-4}	webers/sq. cm.
webers/sq. meter	6.452×10^{-4}	webers/sq. in.
weeks	1.68×10^2	hours
weeks	1.008×10^4	minutes
weeks	6.048×10^5	seconds

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yards	9.144×10^1	centimeters
yards	9.144×10^{-4}	kilometers
yards	9.144×10^{-1}	meters
yards	4.934×10^{-4}	miles (nautical)
yards	5.682×10^{-4}	miles (statute)
yards	9.144×10^3	millimeters
years	3.65256×10^2	days (mean solar)
years	8.7661×10^3	hours (mean solar)

USEFUL PHYSICAL CONSTANTS

GAS CONSTANTS (R)

R = 0.0821 (atm.) (liter)/(g.-mole) ("K)

R = 1.987 g.-cal./(g.-mole) ("K)

R = 1.987 B.t.u./(lb.-mole) ("R)

R = 1.987 c.h.u./(lb.-mole) ("K)

R = 8.314 joules/(gm.-mole) ("K)

R = 1,546 (ft.) (lb. force)/(lb.-mole) ("R)

R = 10.73 (lb.-force/sq.in.) (cu.ft.)/(lb.-mole) ("R)

R = 18510 (lb.-force/sq.in.) (cu.in.)/(lb.-mole) ("R)

R = 0.7302 (atm.) (cu.ft.)/(lb.-mole) ("R)

R = 8.48×10^3 (Kg./m³) (cu.cm.)/(lb.-mole) ("K)

ACCELERATION OF GRAVITY (STANDARD)

g = 32.17 ft./sec.² = 980.6 cm./sec.²

VELOCITY OF SOUND IN DRY AIR @ 0°C and 1 atm.

33,136 cm./sec. = 1,089 ft./sec.

HEAT OF FUSION OF WATER

79.7 cal./gm = 144 Btu/lb.

HEAT OF VAPORIZATION OF WATER @ 1.0 atm.

540 cal./gm = 970 Btu/lb.

SPECIFIC HEAT OF AIR

Cp = 0.238 cal./(gm) ("C)

DENSITY OF DRY AIR @ 0°C and 760 mm.

0.001293 gm/cu.cm.

