

Mathematical conversions - VITA - extract from VTH file

CONVERSION TABLES

MULTIPLY	BY	TO OBTAIN
acres	43,560	square feet
acres	4,047	square meters
acres	1.562×10^{-3}	square miles
acres	0.004047	square kilometers
acres	4840	square yards
atmospheres	76.0	cms of mercury
atmospheres	29.92	inches of mercury
atmospheres	10,333	kgs/square meter
atmospheres	14.70	pounds/square inch
British thermal units	0.2530	kilogram-calories
B.t.u.	777.5	foot-pounds
B.t.u.	3.927×10^{-4}	horsepower-hours

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B.t.u.	1,054	joules
B.t.u.	107.5	kilogram-meters
B.t.u.	2.928 X [10.sup.-4]	kilowatt-hours
B.t.u./min.	0.02356	horsepower
B.t.u./min.	0.01757	kilowatts
B.t.u./min.	17.57	watts
calories	0.003968	B.t.u.
calories	3.08596	foot-pounds
calories	1.1622 X [10.sup.-6]	kilowatt-hours
centimeters	0.3937	inches
centimeters	0.01	meters
centimeters of mercury	0.1934	pounds/square inch
centimeters/second	1.969	feet/minute
centimeters/second	0.036	kilometer/hour
centimeters/second	0.6	meters/minute
centimeters/second	0.02237	miles/hour
cubic centimeters	[10.sup.-6]	cubic meters
cubic centimeters	6.102 X [10.sup.-2]	cubic inches
cubic centimeters	3.531 x [10.sup.-5]	cubic feet
cubic centimeters	1.308 X [10.sup.-6]	cubic yards

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cubic feet	1,728	cubic inches
cubic feet	0.02832	cubic meters
cubic feet	2.832 X [10.sup.4]	cubic centimeters
cubic feet	7.481	gallons
cubic feet	28.32	liters
cubic feet/minute	472.0	cubic cms/second
cubic feet/minute	0.1247	gallons/second
cubic feet/minute	0.4720	liters/second
cubic feet/minute	62.4	pounds water/min
cubic inches	5.787 X [10.sup.-4]	cubic feet
cubic inches	1.639 X [10.sup.-5]	cubic meters
cubic inches	2.143 X [10.sup.-5]	cubic yards
cubic meters	35.31	cubic feet
cubic meters	264.2	gallons
cubic meters	[10.sup.3]	liters
cubic yards	7.646 X [10.sup.5]	cubic centimeters
cubic yards	27.0	cubic feet
cubic yards	46,656	cubic inches
cubic yards	0.7646	cubic meters
cubic yards	202.0	gallons

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cubic yards	764.6	liters
cubic yards/min.	0.45	cubic feet/second
MULTIPLY	BY	TO OBTAIN
cubic yards/min.	3.367	gallons/second
cubic yards/min.	12.74	liters/second
degrees (angle)	60	minutes
degrees (angle)	0.01745	radians
degrees (angle)	3,600	seconds
dynes	1.020 X [10.sup.-3]	grams
dynes	2.248 X [10.sup.-6]	pounds
ergs	9.486 X [10.sup.-11]	B.t.u.
ergs	1	dyne-centimeters
ergs	7.376 X [10.sup.-8]	foot-pounds
ergs	[10.sup.-7]	joules
ergs	2.390 X [10.sup.-11]	kilogram-calories
ergs	1.020 X [10.sup.-8]	kilogram-meters
ergs/second	1.341 X [10.sup.-10]	horsepower
ergs/second	[10.sup.-10]	kilowatts
feet	30.48	centimeters

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feet	0.3048	meters
feet/second	18.29	meters/minute
foot-pounds	1.286×10^{-3}	B.t.u.
foot-pounds	1.356×10^7	ergs
foot-pounds	5.050×10^{-7}	horsepower-hours
foot-pounds	3.241×10^{-4}	kilogram-calories
foot-pounds	0.1383	kilogram-meters
foot-pounds	3.766×10^{-7}	kilowatt-hours
foot-pounds/minute	1.286×10^{-3}	B.t.u./minute
foot-pounds/minute	0.01667	foot-pounds/second
Foot-pounds/minute	3.241×10^{-4}	kg-calories/min
foot-pounds/minute	2.260×10^{-5}	kilowatts
foot-pounds/second	7.172×10^{-2}	B.t.u./minute
foot-pounds/second	1.818×10^{-3}	horsepower
foot-pounds/second	1.945×10^{-2}	kg-calories/min
foot-pounds/second	1.356×10^{-3}	kilowatts
gallons	0.1337	cubic feet
gallons	231	cubic inches
gallons	3.785×10^{-3}	cubic meters
gallons	3.785	liters

Mathematical conversions - VITA - extract from VTH file

gallons/minute	2.228 X [10.sup.-3]	cubic feet/second
gallons/minute	0.06308	liters/second
grams	[10.sup.-3]	kilograms
grams	[10.sup.3]	milligrams
grams	0.03527	ounces
grams	0.03215	troy ounces
grams/cubic centimeter	62.43	pounds/cubic foot
grams centimeters	9.297 X [10.sup.-8]	B.t.u.
horsepower	42.44	B.t.u./minute
horsepower	33,000	foot-pounds/minute
horsepower	550	foot-pounds/second
horsepower	10.70	kg-calories/min
horsepower	0.7457	kilowatts
horsepower	745.7	watts
horsepower	1.014	horsepower(metric)
horsepower-hours	2547	B.t.u.
horsepower-hours	1.98 X [10.sup.6]	foot-pounds
horsepower-hours	641.7	kilogram-calories
horsepower-hours	2.737 X [10.sup.5]	kilogram-meters
horsepower-hours	0.7457	kilowatt-hours

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horsepower-hours	2.684 X [10.sup.6]	joules
inches	2.540	centimeters
inches	254.0	millimeters

MULTIPLY	BY	TO OBTAIN
inches of mercury	0.03342	atmospheres
inches of mercury	1.133	feet of water
inches of mercury	345.3	kgs/sq meter
inches of mercury	70.73	pounds/sq foot
inches of mercury	0.4912	pounds/sq inch
inches of water	0.002458	atmospheres
inches of water	0.07355	inches of mercury
inches of water	25.40	kgs/square meter
inches of water	0.5781	ounces/square inch
inches of water	5.204	pounds/square foot
inches of water	0.03613	pounds/square inch
joules	0.0009458	B.t.u.
joules	0.73756	foot-pounds
joules	0.0002778	watt-hours
joules	1.0	watt-seconds

Mathematical conversions - VITA - extract from VTH file

kilograms	980,665	dynes
kilograms	[10.sup.3]	grams
kilograms	2.2046	pounds
kilograms	1.102 X [10.sup.-3]	short tons
kilogram-calories	3.968	B.t.u.
kilogram-calories	3,086	foot-pounds
kilogram-calories	1.558 X [10.sup.-3]	horsepower-hours
kilogram-calories	4,183	joules
kilogram-calories	426.6	kilogram-meters
kilogram-calories/min.	51.43	foot-pounds/second
kilogram-calories/min.	0.09351	horsepower
kilogram-calories/min.	0.06972	kilowatts
kilograms/hectare	.893	pounds/acre
kilometers	[10.sup.5]	centimeters
kilometers	0.6214	miles
kilometers	3,281	feet
kilometers	1,000	meters
kilometers	1093.6	yards
kilometers/hour	27.78	centimeters/sec
kilometers/hour	54.68	feet/minute

Mathematical conversions - VITA - extract from VTH file

kilometers/hour	0.9113	feet/second
kilometers/hour	0.5396	knots/hour
kilometers/hour	16.67	meters/hour
kilometers/hour	0.6214	miles/hour
kilowatts	56.92	B.t.u./minute
kilowatts	4.425 X [10.sup.4]	foot-pounds/minute
kilowatts	737.6	foot-pounds/second
kilowatts	1.341	horsepower
kilowatts	14.34	kg-calories/min
kilowatts	[10.sup.3]	watts
kilowatts-hours	3,412	B.t.u.
kilowatts-hours	2.655 X [10.sup.6]	foot-pounds
kilowatts-hours	1.341	horsepower-hours
kilowatts-hours	3.6 X [10.sup.6]	joules
kilowatts-hours	860.5	kilogram-calories
kilowatts-hours	3.671 X [10.sup.5]	kilogram-meters
meters	100	centimeters
meters	3.2808	feet
meters	39.37	inches
meters	[10.sup.-3]	kilometers

Mathematical conversions - VITA - extract from VTH file

meters	[10.sup.3]	millimeters
meters	1.0936	yards
meter-kilograms	9.807 X [10.sup.7]	centimeter-dynes

MULTIPLY	BY	TO OBTAIN
meter-kilograms	[10.sup.5]	centimeter-grams
meter-kilograms	7.233	pound-feet
meters/minute	1.667	centimeters/second
meters/minute	3.281	feet/minute
meters/minute	0.05468	feet/second
meters/minute	0.06	kilometers/hour
meters/minute	0.03728	miles/hour
meters/second	196.8	feet/minute
meters/second	3.281	feet/second
meters/second	3.6	kilometers/hour
meters/second	0.06	kilometers/minute
meters/second	2.237	miles/hour
meters/second	0.03728	miles/minute
miles	1.609 X [10.sup.5]	centimeters
miles	5,280	feet

Mathematical conversions - VITA - extract from VTH file

miles	1.6093	kilometers
miles	1,760	yards
miles/min	88.0	feet/second
miles/min	1.6093	kilometers/minute
miles/min	0.8684	knots/minute
ounces	8.0	drams
ounces	437.5	grains
ounces	28.35	grams
ounces	0.625	pounds
ounces/square inch	0.0625	pounds/square inch
pints (dry)	33.60	cubic inches
pints (liquid)	28.87	cubic inches
pounds	444,823	dynes
pounds	7,000	grains
pounds	453.6	grams
pounds	0.45	kilograms
pounds of water	0.01602	cubic feet
pounds of water	27.68	cubic inches
pounds of water	0.1198	gallons
pounds of water/min.	2.669 X [10.sup.-4]	cubic feet/second

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pounds/cubic foot	0.01602	grams/cubic cms.
pounds/cubic foot	16.02	kgs/cubic meter
pounds/cubic foot	5.787 X [10.sup.-4]	pounds/cubic inch
pounds/square foot	4.882	kgs/sq meter
pounds/square foot	6.944 X [10.sup.-3]	pounds/square inch
pounds/square inch	0.06304	atmospheres
pounds/square inch	703.1	kgs/square meter
pounds/square inch	144.0	pounds/square foot
quarts (dry)	67.20	cubic inches
quarts (liquid)	57.75	cubic inches
quadrants (angle)	90	degrees
quadrants (angle)	5,400	minutes
quadrants (angle)	1.571	radians
radians	57.30	degrees
radians	3,438	minutes
radians/second	57.30	degrees/second
raidans/second	0.1592	revolutions/second
revolutions	360.0	degrees
revolutions	4.0	quadrants
revolutions	6.283	radians

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revolutions/minute	6.0	degrees/second
square centimeters	1.076×10^{-3}	square feet
square centimeters	0.1550	square inches
square centimeters	10^{-6}	square meters

MULTIPLY	BY	TO OBTAIN
square centimeters	100	square millimeters
square feet	2.296×10^{-5}	acres
square feet	929.0	square centimeters
square feet	144.0	square inches
square feet	0.09290	square meters
square feet	3.587×10^{-8}	square miles
square feet	0.1111	square yards
square inches	6.452	square centimeters
square inches	645.2	square millimeters
square meters	2.471×10^{-4}	acres
square meters	10.764	square feet
square meters	3.861×10^{-7}	square miles
square meters	1.196	square yards
square miles	640.0	acres

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square miles	2.7878×10^{10}	square feet
square miles	2.590	square kilometers
square miles	3.098×10^6	square yards
square yards	2.066×10^4	acres
square yards	9.0	square feet
square yards	0.8361	square meters
square yards	3.228×10^{-7}	square miles
temp (degs C) + 237	1.0	abs temp (degs K)
temp (degs C) + 17.8	1.8	temp (degs F)
temp (degs F) - 32	5/9	temp (degs C)
tons (long)	1,016	kilograms
tons (long)	2,240	pounds
tons (metric)	$10^{0.3}$	kilograms
tons (metric)	2,205	pounds
tons (short)	907.2	kilograms
tons (short)	2,000	pounds
tons (short)/sq. foot	9,765	kgs/square meter
tons (short)/sq. foot	13.89	pounds/square inch
tons (short)/sq. inch	1.406×10^6	kgs/square meter
tons (short)/sq. inch	2,000	pounds/square inch

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yards 0.9144 meters

TEMPERATURE CONVERSION

The chart in Figure 1 is useful for quick conversion from degrees Celsius (Centigrade) to degrees Fahrenheit and vice versa. Although the chart is fast and handy, you must use the equations below if your answer must be accurate to within one degree.

Equations:

Degrees Celsius = $\frac{5}{9} \times (\text{Degrees Fahrenheit} - 32)$

Degrees Fahrenheit = $1.8 (\text{Degrees Celsius}) + 32$

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Example:

This example may help to clarify the use of the equations; 72F equals how many degrees Celsius?

$$72F = 5/9 (\text{Degrees F} - 32)$$

$$72F = 5/9 (72 - 32)$$

$$72F = 5/9 (40)$$

$$72F = 22.2C$$

Notice that the chart reads 22C, an error of about 0.2C.