

UNIT CONVERSIONS

AREA

1 square centimeter = 0.155 square inch	1 square inch = 6.4516 square centimeters
1 square meter = 10.764 square feet	1 square foot = 0.0929 square meters
1 hectare = 2.471 acres	1 acre = 0.4047 hectares
1 hectare = 10,000 square meters	1 acre = 43,560 square feet
1 square kilometer = 0.3863 square miles	1 square mile = 2.589 square kilometers
1 hectare = 0.003863 square miles	1 square mile = 258.9 hectares

DENSITY

1000 kilograms per cubic meter = 1.94 slugs per cubic foot
1 slug per cubic foot = 515.5 kilograms per cubic meter

DISCHARGE (FLOW RATE)

1 cubic meter per second = 35.315 cubic feet per second
1 cubic foot per second = 0.028317 cubic meters per second
1000 gallons per minute = 2.2278 cubic feet per second
1 million gallons per day = 0.0438 cubic meters per second

ENERGY (WORK OR QUANTITY OF HEAT)

1 joule = 1 newton-meter	1 Btu = 777.8 foot-pound
1 joule = 0.7373 foot-pound	1 foot-pound = 1.356 joules
1 calorie = 4.186 joules	1 Btu = 1055 joules
1 kilowatt-hour = 3412 Btu	1 Btu = 0.000293 kilowatt-hour
1 kilowatt-hour = 3,600,000 joules	1 Btu = 252 calories

ENERGY PER UNIT AREA

1 langley = 1 calorie per square centimeter

FORCE (WEIGHT)

1 newton = 0.2247 pounds
1 kilogram = 2.2046 pounds
1 kilogram = 9.81 newtons
1 metric ton = 1000 kilograms
1 metric ton = 9.81 kilonewtons
1 metric ton = 2204.6 pounds

1 pound = 4.45 newtons
1 pound = 0.4536 kilograms
1 ton = 2000 pounds
1 ton = 0.9072 metric tons

LENGTH (DISTANCE)

1 millimeter = 0.03937 inches
1 centimeter = 0.3937 inches
1 meter = 3.281 feet
1 kilometer = 0.6215 miles
1 meter = 1.0936 yards

1 inch = 25.4 millimeters
1 inch = 2.54 centimeters
1 foot = 0.3048 meters
1 mile = 1.609 kilometers
1 yard = 0.9144 meters

MASS

1 kilogram = 2.2046 pounds
1 kilogram = 0.0685 slugs

1 pound = 0.4536 kilograms
1 slug = 14.6 kilograms

POWER

1 watt = 1 joule per second
1 watt = 1 newton-meter per second
1 kilowatt = 1.341 horsepower

1 horsepower = 550 foot-pound per second
1 horsepower = 746 watts
1 horsepower = 0.746 kilowatts

PRESSURE

1 pascal = 1 newton per square meter
1 kilopascal = 1000 pascal
1 kilopascal = 0.145 lb per square inch

1 lb per square inch = 6.8972 kilopascals
1 lb per square inch = 6897.2 pascals

SPECIFIC WEIGHT

1 newton per cubic meter = 0.0063636 pounds per cubic foot

1 pound per cubic foot = 157.14 newtons per cubic meter

VELOCITY

1 meter per second = 3.28 feet per second

1 kilometer per hour = 0.6215 miles per
hour

1 foot per second = 0.3048 meters per
second

1 mile per hour = 1.609 kilometers per
hour

VISCOSITY (ABSOLUTE)

1 poise = 0.1 newton-second per square
meter

1 poise = 0.0020878 lb-second per square
foot

1 centipoise = 0.01 poise

1 lb-second per square foot = 478.97 poise

1 lb-second per square foot = 47897
centipoise

VISCOSITY (KINEMATIC)

1 stoke = 1 square centimeter per second

1 centistoke = 0.01 stoke

1 centistoke = 0.000001 square meter per
second

1 centistoke = 0.000010764 square feet per
second

1 square foot per second = 929.03 stoke

1 square foot per second = 92,903
centistoke

VOLUME

1 liter = 0.2642 U.S. gallons

1 liter = 0.035315 cubic feet

1 liter = 0.001 cubic meter

1 cubic meter = 35.315 cubic feet

1 cubic meter = 1.308 cubic yards

1 cubic meter = 264.17 U.S. gallons

1 U.S. gallon = 3.7854 liters

1 cubic foot = 28.317 liters

1 U.S. gallon = 0.13368 cubic feet

1 cubic foot = 0.028317 cubic meters

1 cubic yard = 0.7646 cubic meters

1 million U.S. gallons = 3785.4 cubic
meters

1 cubic hectometer = 1 million cubic meters

1 cubic hectometer = 810.71 acre-feet

10,000 cubic meters = 4.0873 (ft³/s)-day

1 million cubic feet = 28,317 cubic meters

1 acre-foot = 1233.5 cubic meters

1 (ft³/s)-day = 2446.6 cubic meters

1 (ft³/s)-day = 1.983 acre-feet

COMMON CONSTANTS

GRAVITATIONAL ACCELERATION

9.81 meters per square second	32.17 feet per square second
981 centimeters per square second	

DENSITY OF WATER (AT 4°C)

1000 kilograms per cubic meter	1.94 slugs per cubic foot
1 gram per cubic centimeter	1.94 (lb-f)-s ² /ft ⁴

SPECIFIC WEIGHT OF WATER

At 4°C and 760 mm Hg:	
9.806 kilonewtons per cubic meter	62.43 lb-f per cubic foot
At 20.2°C and 760 mm Hg:	
9.789 kilonewtons per cubic meter	62.32 lb-f per cubic foot

STANDARD SEA-LEVEL ATMOSPHERIC PRESSURE

1013.2 millibars	
1033 g/cm ²	14.7 lb per square inch
101.32 kilonewtons per square meter	
760 millimeters of Hg	29.92 in. Hg
10.33 meters of H ₂ O	33.9 ft of H ₂ O