

Unit Conversion Table

Below is the list of different units and their conversions. To know volume, length, time, energy, area, power, force, mass, viscosity, and density unit conversion refer to the unit conversion table given below.

Volume Unit Conversion	
1 milliliter	0.001 liter
1 centiliter	0.01 liter
1 deciliter	0.1 liter
1 decaliter	10 liters
1 hectoliter	100 liters
1 kiloliter	1000 liters
1 cubic inch	1.639×10^{-2} liters
1 gallon	3.785 liters
1 cubic foot	28.316 liters

Length Unit Conversion	
1 millimeter	0.001 meter
1 centimeter	0.01 meter
1 decimeter	0.1 meter
1 decameter	10 meters
1 hectometer	100 meters
1 kilometer	1000 meters
1 inch	2.54×10^{-2} meters
1 foot	0.3048 meters
1 angstrom	1×10^{-10} meters

1 fermi	1×10^{-15} meters
1 light year	0.946×10^{16} meters
1 mile	1.609344 kms

Mass Conversion	
1 milligram	0.001 gram
1 centigram	0.01 gram
1 decigram	0.1 gram
1 decagram	10 gram
1 hectogram	100 gram
1 kilogram	1000 grams
1 stone	6350.29 grams
1 pound	453.592 grams
1 ounce	28.3495 grams

Time Unit Conversion	
1 minute	60 seconds
1 hour	60 minutes / 3600 seconds
1 day	24 hours
1 week	7 days
1 year	365 days

Energy Unit Conversion	
1 BTU (British thermal unit)	1055 Joule
1 erg	1×10^{-7} Joule

1 foot-pound	1.356 Joule
1 calorie	4.186 Joule
1 kilowatt-hour	3.6×10^6 Joule
1 electron volt	1.602×10^{-19} Joule
1 liter atmosphere	101.13 Joule

Area Unit Conversion	
1 sq. inch	6.4516×10^{-4} square meter
1 sq. foot	9.2903×10^{-2} square meter
1 acre	4.0468×10^3 square meter
1 hectare	1×10^4 square meter
1 sq. mile	2.5888×10^6 square meter
1 barn	1×10^{-28} square meter

Power Unit Conversion	
1 erg/sec	1×10^{-5} watt
1 BTU/hr	0.2930 watt
1 foot-pound/ sec	1.356 watt
1 horsepower	745.7 watt
1 calorie/ sec	4.186 watt

Force Unit Conversion	
1 dyne	1×10^{-5} Newton
1 pound	4.448 Newton

Density Unit Conversion	
1 slug/ cubic ft	515.4 kilogram/ cubic meter
1 pound/ cubic in	2.768×10^4 kilogram/ cubic meter

Viscosity Unit Conversion	
1 poise	0.1 kg/m.s
1 slug/ft	4.79×10^1 kg/m.s

Importance of Mathematical Conversions

The table for conversion of length is:

Unit conversion for Length	
1 millimeter	0.001 meter
1 centimeter	0.01 meter
1 decimeter	0.1 meter
1 decameter	10 meters
1 hectometer	100 meters
1 kilometer	1000 meters
1 inch	2.54×10^{-2} meters
1 foot	0.3048 meters
1 mile	1.609344 km

Table for Mass Conversion

The below table helps to understand the convection of units for mass.

Unit conversion for Mass	
1 milligram	0.001 gram
1 centigram	0.01 gram

1 decigram	0.1 gram
1 decagram	10 gram
1 hectogram	100 gram
1 kilogram	1000 grams

Unit Conversion Table

Let's have a look at some basic unit conversion of mass and length.

Units of Length	Units of Mass
1 km = 10 hm = 100 dam = 1000 m	1 kg = 10 hg = 100 dag = 1000 g
1m = 10 dm = 100 cm = 1000 mm	1 g = 10 dg = 100 cg = 1000 mg
1 dm = 10 cm = 100 mm	1 dg = 10 cg = 100 mg
1 cm = 10 mm	1 cg = 10 mg

The below table shows the conversion of units for time.

Conversion of Units for Time	
1 minute	60 seconds
1 hour	60 minutes (or) 3600 seconds
1 day	24 hours
1 week	7 days
1 year	365 days

In geometry, we deal with many problems of finding the area and perimeter of shapes. In such cases, one may need to convert the units of measure of area. The below table helps in such types of conversions.

Conversion of Units for Area	
1 sq. inch	6.4516×10^{-4} square meter
1 sq. foot	9.2903×10^{-2} square meter
1 acre	4.0468×10^3 square meter
1 hectare	1×10^4 square meter
1 sq. mile	2.5888×10^6 square meter

List of Basic Physics Formulas

Here are some basic physics formulas for competitive exams-

Basic Physics Formulas	Concept	Formula
Average Speed Formula	It is used to calculate the average speed (S) of a moving body for the distance covered (D) as well as the time duration (T).	$S = \frac{D}{T}$
Acceleration Formula	Acceleration refers to the rate of change in velocity to the change in time. It is denoted by symbol a.	$a = \frac{v-u}{t}$
Density Formula	This formula depicts the denseness of material in a specific given area.	$P = \frac{m}{V}$
Power Formula	The capacity to perform an activity is known as Energy. On the other hand, energy spent in carrying out an activity (work) for a particular period of time is termed as Power.	$P = \frac{W}{t}$
Newton's Second Law	Using the formula, the force can be expressed by the product of mass and acceleration of the body.	$F = ma$
Weight Formula	The formula measures the force with which an object falls due to gravity.	$W = mg$
Pressure Formula	Pressure refers to the amount of force applied per unit area of the object.	$P = \frac{F}{A}$
Ohm's Law Formula	Ohm's law states that the current passing through a conductor material is directly proportional to the potential difference between two endpoints of the conductor.	$V = I \times R$
Kinetic Energy Formula	Kinetic energy is the energy that is possessed by a body due to its state of motion.	$E = \frac{1}{2}mv^2$
Frequency Formula	Frequency refers to the revolutions completed per second or as the number of wave cycles.	$f = \frac{v}{\lambda}$
Pendulum Formula	This equation calculates how long the pendulum takes swing back and forth in seconds	$T = 2\pi\sqrt{\frac{L}{g}}$

Fahrenheit Formula	This is a conversion formula for a temperature.	$F = (95 \times ^\circ\text{C}) + 32$
Work Formula	The work formula measures the multiplication of magnitude of displacement d and the component of the force.	$W = F \times d \times \cos\theta$
Torque Formula	Torque is rotational force or turning effect. It measures the magnitude of	$T = F \times r \times \sin\theta$
Displacement Formula	Refers to the change in the object's position from its initial place to its final position.	$D = X_f - X_i = \Delta X$
Mass Formula	This formula represents the relationship between force and mass. Here, F = force, m = mass, and a = acceleration.	$F = ma$ or $m = F/a$

SI Units

Name of the Quantity	SI Unit	Name of the Unit
Mass	Kilogram	Kg
Time	Second	s
Length	Metre	m
Thermodynamic/ Temperature	Kelvin	K
Electric Current	Ampere	A
Luminous	Candela	Cd
Amount of Substance	Mole	Mole
Electric Resistance	Ohm	Ω
Power	Watt	W
Wavelength of Light	Angstrom	\AA
Magnetic Induction	Gauss	Gs
Electric Charge	Coulomb	C
Atmospheric Pressure	Bar	bar
Energy	Joule	J
Magnetic Flux	Maxwell	Mx
Pressure	Pascal	Pa
Force	Newton	N

Important Instruments and Devices

Instruments	Functions
Speedometer	A device used to measure and display the speed of a vehicle.
Accelerometer	It is a device that measures acceleration.
Dynamometer	Usually, this device is used for measuring the torque, force as well as the power of a body.
Anemometer	Through this device, we can measure the speed of the wind.
Galvanometer	It is an electromechanical instrument which is utilised for detecting and indicating the electric current.
Barometer	A barometer is a scientific instrument which has its application in meteorology and is used to calculate the atmospheric pressure.
Viscometer	Through this device, we can calculate the viscosity of a fluid.
Seismometer	This instrument helps in assessing and measuring the random motions inside the earth's crust caused by an earthquake or volcanic eruption etc.
Voltmeter	By using a voltmeter, we can measure the electrical potential difference between two given points