

International System (SI) Prefixes

Factor	Prefix	Symbol	Factor	Prefix	Symbol
10^{18}	exa	E	10^{-1}	deci	d
10^{15}	peta	P	10^{-2}	centi	c
10^{12}	tera	T	10^{-3}	milli	m
10^9	giga	G	10^{-5}	micro	μ
10^6	mega	M	10^{-9}	nano	n
10^3	kilo	k	10^{-12}	pico	P
10^2	hecto	h	10^{-15}	femto	f
10^1	deka	da	10^{-18}	atto	a

International System (SI) Derived Units With Special Names

Quantity	Name	Symbol	Expression in terms of other units
absorbed dose, specific energy imparted, kerma, absorbed dose index	gray	Gy	J/kg
activity (of a radionuclide)	becquerel	Bq	s^{-1}
capacitance	farad	F	C/V
conductance	siemens	S	A/V
dose equivalent, dose equivalent index	sievert	Sv	J/kg
electric charge, quantity of electricity	coulomb	C	$A \cdot s$
electric potential, potential difference, electromotive force, voltage	volt	V	W/A
electric resistance	ohm	Ω	V/A
energy work, quantity of heat	joule	J	$N \cdot m$
force	newton	N	$(kg \cdot m)/s^2$
frequency	hertz	Hz	s^{-1}
illuminance	lux	lx	lm/m^2
inductance	henry	H	Wb/A
luminous flux	lumen	lm	$cd \cdot sr$
magnetic flux	weber	Wb	$V \cdot s$
magnetic flux density	tesla	T	Wb/m^2
pressure, stress	pascal	Pa	N/m^2
radiant flux, power	watt	W	J/s
volume (capacity)	liter	L	dm^3

Other International System (SI) Derived Units

Quantity	Name	Symbol
absorbed dose rate	gray per second	Gy/s
acceleration	meter per second squared	m/s ²
angular acceleration	radian per second squared	rad/s ²
angular velocity	radian per second	rad/s
area	square meter	m ²
concentration (amount of substance)	mole per cubic meter	mol/m ³
current density	ampere per square meter	A/m ²
density, mass density	kilogram per cubic meter	kg/m ³
electric charge density	coulomb per cubic meter	kg/m ³
electric field strength	volt per meter	V/m
electric flux density	coulomb per square meter	C/m ²
energy density	joule per cubic meter	J/m ³
exposure (X and γ rays)	coulomb per kilogram	C/kg
heat capacity, entropy	joule per kelvin	J/K
luminance	candela per square meter	cd/m ²
magnetic field strength	ampere per meter	A/m
molar energy	joule per mole	J/mol
molar entropy, molar heat capacity	joule per mole kelvin	J/(mol · K)
moment of force	newton meter	N · m
permeability	henry per meter	H/m
permittivity	farad per meter	F/m
power density, heat flux density, irradiance	watt per square meter	W/m ²
radiance	watt per square meter steradian	W/(m ² · sr)
radiant intensity	watt per steradian	W/sr
specific energy	joule per kilogram	J/kg
specific heat capacity, specific entropy	joule per kilogram kelvin	J/(kg · K)
specific volume	cubic meter per kilogram	m ³ /kg
surface tension	newton per meter	N/m
thermal conductivity	watt per meter kelvin	W/(m · K)
velocity, speed	meter per second	m/s
viscosity (dynamic)	pascal second	Pa · s
viscosity (kinematic)	square meter per second	m ² /s
volume	cubic meter	m ³
wave number	one per meter	m ⁻¹

Examples of Conversions to International System (SI) Equivalents

Physical quantity	Traditional U.S. unit	SI equivalent
Area	acre	4,046.873 m ²
	square foot ^a	0.09290304 m ²
	square inch ^a	645.16 mm ²
	square mile (statute)	2.589998 km ²
	square yard	0.8361274 m ²
Energy	British thermal unit (IT)	1,055.056 J
	calorie (IT), thermochemical ^a	4.186800 J
	erg	10 ⁻⁷ J
	kilowatt hour ^a	3.6 × 10 ⁶ J
Force	dyne	10 ⁻⁵ N
	kilogram force ^a	9.80665 N
	poundal	0.138255 N
Length	angstrom (Å) ^a	0.1 nm
	foot (international) ^a	0.3048 m
	inch ^a	2.54 cm
	micrometer ^a	1.0 μm
	mile (U.S. statute)	1.609347 km
	nautical mile (international; nmi) ^a	1,852.0 m
	yard ^a	0.9144 m
Light	footcandle	10.76391 lx
	footlambert	3.426359 cd/m ²
Mass	grain ^a	64.79891 mg
	ounce	28.34952 g
	pound (U.S.) ^a	0.45359237 kg
Power	horsepower (electric) ^a	0.746 kW
Pressure	atmosphere (normal) ^a	101,325.0 Pa
	pound per square inch (psi)	6.894757 kPa
	torr ^a	(101,325/760) Pa
	sound pressure level (SPL; 0.0002 dynes/cm ²) ^b	20 μN/m ²
Volume	cubic foot	0.02831685 m ³
	cubic inch	16.38706 cm ³
	fluid ounce	29.57353 ml
	quart (liquid)	0.9463529 L

Note. IT = International Table.

^aConversion factors for these units are exact. (For conversion factors that are not exact, the precision with which the quantity was measured determines the number of decimal places.) ^bA decibel value is a measure of the power of sound relative to a specific reference level. The most common reference level on which decibel values are based is at 20 μN/m². If decibel values are based on another reference level, specify the level. Also, always indicate how frequencies were weighted: If frequencies were equally weighted, write SPL (i.e., sound pressure level) in parentheses after the decibel value; if frequencies were unequally weighted, specify the standard weighting used (e.g., A, B, or C) in parentheses after the decibel value.