

SOME PHYSICAL CONSTANTS

<i>Name</i>	<i>Symbol</i>	<i>Value</i>
Boltzmann constant	k	$1.380662 \cdot 10^{-23} \text{ Pa} \cdot \text{m}^3 / (\text{particle} \cdot \text{K})$
Coulomb constant	k	$8.9875518 \cdot 10^9 \text{ N} \cdot \text{m}^2 / \text{C}^2$
Elementary unit of electric charge	e	$1.6021892 \cdot 10^{-19} \text{ C}$
Gravitational constant	G	$6.6720 \cdot 10^{-11} \text{ N} \cdot \text{m}^2 / \text{kg}^2$
Planck constant	h	$6.626176 \cdot 10^{-34} \text{ J} \cdot \text{s}$
Speed of light	c	$299,792,458 \text{ m/s}$
Stefan-Boltzmann constant	σ	$5.67032 \cdot 10^{-8} \text{ J} / (\text{s} \cdot \text{m}^2 \cdot \text{K}^4)$

USEFUL PHYSICAL DATA

<i>Quantity</i>	<i>Value</i>
Air	
Atmospheric pressure at sea level	101,325 Pa (14.70 pounds/inch ²)
Speed of sound (0° C)	331 m/s (1193 km/h or 741 mph)
Speed of sound (20° C)	343 m/s (1235 km/h or 767 mph)
Density at sea level (0° C)	1.29 kg/m ³
Specific heat capacity	1,009 J/(kg·K)
Index of refraction at 589 nm (0° C)	1.000293
Viscosity (20° C)	0.0000183 Pa·s
Coefficient of volume expansion (20° C)	0.0034
Water	
Speed of sound (0° C)	1,402 m/s (5,048 km/h or 3,138 mph)
Density (4° C)	1,000 kg/m ³
Latent heat of melting	333,700 J/kg
Latent heat of vaporization	2,259,000 J/kg
Specific heat capacity	4,186 J/(kg·K)
Index of refraction at 589 nm (0° C)	1.334
Viscosity (20° C)	0.00100 Pa·s
Coefficient of volume expansion (20° C)	0.000207
Earth	
Mass	$5.9742 \cdot 10^{24} \text{ kg}$
Radius (at the equator)	6,378,140 m (3,964 miles)
Mean density	5,515 kg/m ³
Acceleration due to gravity at its surface	9.807 m/s ²
Mean distance from the sun	$1.496 \cdot 10^{11} \text{ m}$
Orbital period at an altitude of 100 km	5,170 s (86.3 minutes)
Radius of a geosynchronous orbit	42,200,000 m (26,200 miles)
Escape velocity at its surface	11,200 m/s (40,300 km/h or 25,100 mph)
Moon	
Mass	$7.35 \cdot 10^{22} \text{ kg}$
Radius	1,738,000 m (1,080 miles)
Mean density	3,343 kg/m ³
Acceleration due to gravity at its surface	1.62 m/s ²
Mean distance from the earth	$3.844 \cdot 10^8 \text{ m}$
Escape velocity at its surface	2,380 m/s (8,550 km/h or 5,320 mph)
Sun	
Mass	$1.989 \cdot 10^{30} \text{ kg}$
Radius	695,990,000 m (432,560 miles)
Mean density	1,408 kg/m ³
Acceleration due to gravity at its surface	274 m/s ²
Power production	$3.826 \cdot 10^{26} \text{ W}$

SI UNITS

<i>Physical Quantity</i>	<i>Unit Name</i>	<i>Abbreviation</i>	<i>Synonymous Units</i>
Acceleration	meter/second ²	m/s ²	
Angle	radian	rad	
Angular acceleration	radian/second ²	rad/s ²	
Angular impulse	kilogram·meter ² /second	kg·m ² /s	
Angular momentum	kilogram·meter ² /second	kg·m ² /s	
Angular velocity	radian/second	rad/s	
Capacitance	farad	F	Q/V
Density	kilogram/meter ³	kg/m ³	
Electric charge	coulomb	C	A·s
Electric current	ampere	A	C/s
Electric field	newton/coulomb	N/C	
Electric resistance	ohm	Ω	V/A
Energy	joule	J	N·m
Entropy	joule/kelvin	J/K	
Force	newton	N	kg·m/s ²
Frequency	hertz	Hz	1/s
Impulse	kilogram·meter/second	kg·m/s	
Inductance	henry	H	V·s/A
Length	meter	m	
Magnetic field	tesla	T	N/(A·m)
Magnetic flux	weber	Wb	T·m ²
Magnetic pole	Ampere·meter	A·m	
Mass	kilogram	kg	
Moment of inertia	kilogram·meter ² /radian	kg·m ² /rad	N·m·s ² /rad
Momentum	kilogram·meter/second	kg·m/s	
Power	watt	W	J/s
Pressure	pascal	Pa	N/m ²
Specific heat capacity	joule/(kilogram·kelvin)	J/(kg·K)	
Stress	pascal	Pa	N/m ²
Temperature	kelvin	K	
Time	second	s	
Torque	newton·meter	N·m	
Velocity	meter/second	m/s	
Viscosity	pascal·second	Pa·s	
Voltage	volt	V	J/C
Work	joule	J	N·m

SI PREFIXES

<i>Factor</i>	<i>Prefix</i>	<i>Symbol</i>	<i>Factor</i>	<i>Prefix</i>	<i>Symbol</i>
10 ¹	deka	da	10 ⁻¹	deci	d
10 ²	hecto	h	10 ⁻²	centi	c
10 ³	kilo	k	10 ⁻³	milli	m
10 ⁶	mega	M	10 ⁻⁶	micro	μ
10 ⁹	giga	G	10 ⁻⁹	nano	n
10 ¹²	tera	T	10 ⁻¹²	pico	p
10 ¹⁵	peta	P	10 ⁻¹⁵	femto	f
10 ¹⁸	exa	E	10 ⁻¹⁸	atto	a
10 ²¹	zetta	Z	10 ⁻²¹	zepto	z
10 ²⁴	yotta	Y	10 ⁻²⁴	yocto	y