Conversion of units

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**Conversion of units** refers to **conversion factors** between different [units of measurement](file:///\\wiki\Units_of_measurement) for the same [quantity](file:///\\wiki\Quantity).

## Tables of conversion factors

**Luminance**

*Luminance is a photometric measure of the density of luminous intensity in a given direction.*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of unit | Symbol | Definition | Relation to [SI](file:///\\wiki\SI) units |
| [candela per square metre](file:///\\wiki\Candela_per_square_metre) ([SI base unit](file:///\\wiki\SI_base_unit)) |  | ≡ cd/m2 | = 1 cd/m2 |
| [lambert](file:///\\wiki\Lambert_%28unit%29) | L | ≡ (104/π) cd/m2 | ≈ 3183.09886 cd/m2 |

**Length**

*Length is a measure of one dimension, whereas area is a measure of two dimensions (length squared) and volume is a measure of three dimensions (length cubed). In most systems of measurement, length is a fundamental unit, from which other units are derived.*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of unit | Symbol | Definition | Relation to [SI](file:///\\wiki\SI) units |
| [metre](file:///\\wiki\Metre) ([SI base unit](file:///\\wiki\SI_base_unit)) | m | ≡ 1 m | = 1 m |
| finger |  | ≡ 7/8 in | = 0.00022225 m |
| [inch](file:///\\wiki\Inch) | in | ≡ 1/36 yd = 1/12 ft | = 0.0254 m |
| [league](file:///\\wiki\League_%28unit%29) | lea | ≡ 3 mi | = 4828.032 m |
| [mile](file:///\\wiki\Mile) | mi | ≡ 1760 yd = 5280 ft | = 1609.344 m |
| [mile](file:///\\wiki\Mile) (U.S. Survey) | mi | ≡ 5280 ft (US) | = 5280 × 1200/3937 m ≈ 1609.347 219 m |

**Area**

*Area is a quantity expressing the two-dimensional size of a defined part of a surface, typically a region bounded by a closed curve.*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of unit | Symbol | Definition | Relation to [SI](file:///\\wiki\SI) units |
| [acre](file:///\\wiki\Acre) | ac | ≡ 10 sq ch = 4840 sq yd | = 4046.856 422 4 m² |
| [are](file:///\\wiki\Are) | a |  | ≡ 100 m² |
| [barn](file:///\\wiki\Barn_%28unit%29) | b |  | ≡ 10−28 m² |
| [hectare](file:///\\wiki\Hectare) | ha | ≡ 10 000 m² | = 10 000 m² |
| [hide](file:///\\wiki\Hide_%28unit%29) |  | ≡ 100 ac | = 4.046 856 422 4×105 m² |

**Volume**

*The volume of any solid, liquid, or gas is how much three-dimensional space it occupies, often quantified numerically.*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of unit | Symbol | Definition | Relation to [SI](file:///\\wiki\SI) units |
| [acre foot](file:///\\wiki\Acre_foot) | ac ft | ≡ 1 ac x 1 ft = 43560 ft³ | = 1233.481 837 547 52 m³ |
| [cubic metre](file:///\\wiki\Cubic_metre) (SI unit) | m³ | ≡ 1 m × 1 m × 1 m | = 1 m³ |
| [litre](file:///\\wiki\Litre) | L | ≡ 1 dm³ [[5]](file:///D:\Documents%20and%20Settings\bogdan\Desktop\Conversion_of_units.htm#cite_note-specpub330-4) | = 0.001 m³ |
| [lambda](file:///\\wiki\Lambda_%28unit%29) | λ | ≡ 1 mm³ | = 1 ×10−9 m³ |
| [drop](file:///\\wiki\Drop_%28unit%29) (metric) |  | ≡ 1/20 mL | = 5 ×10−9 m³ |

**Angle**

*In geometry and trigonometry, an angle (in full, plane angle) is the figure formed by two rays sharing a common endpoint, called the vertex of the angle (Sidorov 2001).*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of unit | Symbol | Definition | Relation to [SI](file:///\\wiki\SI) units |
| [radian](file:///\\wiki\Radian) (SI unit) | rad | ≡ 180°/π | 1 rad |
| [centesimal](file:///\\w\index.php?title=Centesimal&action=edit&redlink=1) [second of arc](file:///\\wiki\Second_of_arc) | " | ≡ 1 grad/10000 | ≈ 1.57 079 6×10−6 rad |
| [arcsecond](file:///\\wiki\Arcsecond) | " | ≡ 1°/3600 | ≈ 4.84 813 7×10−6 rad |
| [centesimal](file:///\\w\index.php?title=Centesimal&action=edit&redlink=1) [minute of arc](file:///\\wiki\Minute_of_arc) | ' | ≡ 1 grad/100 | ≈ 15.708 0×10−6 rad |

**Mass**

*Note: see [Weight](file:///\\\\wiki\\Weight" \o "Weight) for detail of mass/weight distinction and conversion*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of unit | Symbol | Definition | Relation to [SI](file:///\\wiki\SI) units |
| [kilogram](file:///\\wiki\Kilogram), [grave](file:///\\wiki\Grave_%28mass%29)([SI base unit](file:///\\wiki\SI_base_unit)) | kg; G |  | = 1kg |
| [electron](file:///\\wiki\Electron) rest mass | me |  | ≈ 9.109 381 88×10−31 ± 72×10−39 kg |
| [atomic unit of mass](file:///\\wiki\Atomic_units) | amu | ≡ me | ≈ 9.109 381 88×10−31 ± 72×10−39 kg |
| [unified atomic mass unit](file:///\\wiki\Unified_atomic_mass_unit) | u |  | ≈ 1.660 538 73×10−27 ± 13×10−35 kg |
| [dalton](file:///\\wiki\Dalton_%28unit%29) | Da |  | ≈ 1.660 902 10×10−27 ± 13×10−35 kg |
| [gamma](file:///\\w\index.php?title=Gamma_%28unit%29&action=edit&redlink=1) | γ |  | ≡ 1 ×10-6 kg |

**Time**

*Time is a component of the measuring system used to sequence events, to compare the durations of events and the intervals between them, and to quantify the motions of objects. Time has been a major subject of religion, philosophy, and science, but defining time in a non-controversial manner applicable to all fields of study has consistently eluded the greatest scholars.*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of unit | Symbol | Definition | Relation to [SI](file:///\\wiki\SI) units |
| [second](file:///\\wiki\Second) ([SI base unit](file:///\\wiki\SI_base_unit)) | s |  | = 1 s |
| [Planck time](file:///\\wiki\Planck_time) |  | ≡ (Gℏ/c5)½ | ≈ 1.351 211 818×10−43 s |
| [atomic unit of time](file:///\\wiki\Atomic_units) | Au | ≡ a0/(α•c) | ≈ 2.418 884 254×10−17 s |
| [svedberg](file:///\\wiki\Svedberg) | S | ≡ 10−13 s | = 100×10-13 s |
| shake |  | ≡ 10−8 s | = 10×10-8 s |
| sigma |  | ≡ 10−6 s | = 10×10-6 s |

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