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| **COMMON PHYSICAL QUANTITIES** |
| **Quantity** | **Symbol** | **Value** | **Quantity** | **Symbol** | **Value** |
| Gravitational acceleration on Earth | $$g$$ | 9.8 ms-2 | Mass of electron | $$m\_{e}$$ | $9.11 × 10^{-31}$ kg |
| Radius of Earth | $$R\_{E}$$ | $$6.4 × 10^{6} m$$ | Charge on electron | $$e$$ | $$1.60 × 10^{-19} C$$ |
| Mass of Earth | $$M\_{E}$$ | $$6.0 × 10^{24} kg$$ | Mass of neutron | $$m\_{n}$$ | $$1.675 × 10^{-27} kg$$ |
| Mass of Jupiter | $$M\_{J}$$ | $$1.9 × 10^{27} kg$$ | Mass of proton | $$m\_{p}$$ | $$1.673 × 10^{-27} kg$$ |
| Radius of Jupiter | $$R\_{J}$$ | $$7.15 × 10^{7}m$$ | Mass of alpha particle | $$m\_{α}$$ | $$6.645 × 10^{-27} kg$$ |
| Mean radius of Jupiter orbit |  | $$7.79 × 10^{11} m$$ | Charge on alpha particle |  | $$3.20 × 10^{-19} kg$$ |
| Mass of Moon | $$M\_{M}$$ | $$7.3 × 10^{22} kg$$ | Planck’s constant | $$h$$ | $$6.63 × 10^{-34} Js$$ |
| Radius of Moon | $$R\_{M}$$ | $$1.7 × 10^{6} m$$ |
| Mean radius of Moon orbit |  | $$3.84 × 10^{8} m$$ | Permittivity of free space | $$ε\_{0}$$ | $$8.85 × 10^{-12} Fm^{-1}$$ |
| Solar radius |  | $$6.955 × 10^{8} m$$ |
| Mass of Sun |  | $$2.0 × 10^{30} kg$$ | Permeability of free space | $$μ\_{0}$$ | $$4π × 10^{-7} Hm^{-1}$$ |
| 1 AU |  | $$1.5 × 10^{11} m$$ |
| Stefan-Boltzmann constant | $$σ$$ | $$5.67 × 10^{-8} Wm^{-2}K^{-4}$$ | Speed of light in vacuum | $$c$$ | $$3.00 × 10^{8} ms^{-1}$$ |
| Universal constant of gravitation | $$G$$ | $$6.67 × 10^{-11} m^{3}kg^{-1}s^{2}$$ | Speed of sound in air | $$v$$ | 3.4 $×$ 102 ms-1 |
| **REFRACTIVE INDICES**The refractive indices refer to sodium light of wavelength 589 nm and to substances at a temperature of 273 K. |
| **Substance** | **Refractive index** | **Substance** | **Refractive index** |
| Diamond | 2.42 | Glycerol | 1.47 |
| Glass | 1.51 | Water | 1.33 |
| Ice | 1.31 | Air | 1.00 |
| Perspex | 1.49 | Magnesium fluoride | 1.38 |
| **SPECTRAL LINES** |
| **Element** | **Wavelength/nm** | **Colour** | **Element** | **Wavelength/nm** | **Colour** |
| Hydrogen | 656 | Red | Cadmium | 644 | Red |
|  | 486 | Blue-green |  | 509 | Green |
|  | 434 | Blue-violet |  | 480 | Blue |
|  | 410 | Violet | **Lasers** |
|  | 397 | Ultraviolet | *Element* | *Wavelength/nm* | *Colour* |
|  | 389 | Ultraviolet | Carbon dioxide | 9550 | Infrared |
|  |  |  |  | 10590 | Infrared |
| Sodium | 589 | Yellow | Helium-neon | 633 | Red |
| **PROPERTIES OF SELECTED MATERIALS** |  |  |  |
| **Substance** | **Density/kgm-3** | **Melting Point/K** | **Boiling Point/K** | **Specific Heat Capacity****(J kg-1 °C-1)** | **Specific latent heat of fusion****(J kg-1‑)** | **Specific latent heat of vaporisation****(J kg-1)** |
| Aluminium | $$2.70 × 10^{3}$$ | 933 | 2623 | $$9.02 × 10^{2}$$ | $$3.95 × 10^{5}$$ | … |
| Copper | $$8.96 × 10^{3}$$ | 1357 | 2853 | $$3.86 × 10^{2}$$ | $$2.05 × 10^{5}$$ | … |
| Glass | $$2.60 × 10^{3}$$ | 1400 | … | $$6.70 × 10^{2}$$ | … | … |
| Ice | $$9.20 × 10^{3}$$ | 273 | … | $$2.10 × 10^{2}$$ | $$3.34 × 10^{5}$$ | … |
| Glycerol | $$1.26 × 10^{3}$$ | 291 | 563 | $$2.43 × 10^{3}$$ | $$1.81 × 10^{5}$$ | $$8.30 × 10^{5}$$ |
| Methanol | $$7.91 × 10^{2}$$ | 175 | 338 | $$2.52 × 10^{3}$$ | $$9.9 × 10^{4}$$ | $$1.12 × 10^{6}$$ |
| Sea Water | $$1.02 × 10^{3}$$ | 264 | 377 | $$3.93 × 10^{3}$$ | … | … |
| Water | $$1.00 × 10^{3}$$ | 273 | 373 | $$4.18 × 10^{3}$$ | $$3.34 × 10^{5}$$ | $$2.26 × 10^{6}$$ |
| Air | $$1.29$$ | … | … | … | … | … |
| Hydrogen | $$9.0 × 10^{3}$$ | 14 | 20 | $$1.43 × 10^{4}$$ | … | $$4.50 × 10^{5}$$ |
| Nitrogen | 1.25 | 63 | 77 | $$1.04 × 10^{3}$$ | … | $$2.00 × 10^{5}$$ |
| Oxygen | 1.43 | 55 | 90 | $$9.18 × 10^{2}$$ | … | $$2.40 × 10^{4}$$ |

The gas densities refer to a temperature of 273 K and a pressure of $1.01 × 10^{5}$ Pa.