

Wednesday, January 21, 2026

"Système International"

SI units

Kilogram

kg

mass

Meter

m

length

Second

s

time

Joule

J

energy

degree Kelvin

K

temperature

Watt

W

power
(energy per time)

$$[W] = [J] / [s]$$

radian

rads

angle

SPEED OF LIGHT

(scientific notation)

$$c = 299,792,458 \text{ m/s} = 2.99792... \times 10^8 \text{ m/s}$$

$$\approx 3.00 \times 10^8 \text{ m/s}$$

$$\approx 3.00 \times 10^5 \text{ km/s}$$

$$\approx 300,000 \text{ km/s}$$

$$1000 \text{ m} = 1 \text{ km}$$

$$10^3 \text{ m} = 1 \text{ km}$$

$$\text{In this class } c = 3.00 \times 10^8 \text{ m/s} \\ = 3.00 \times 10^5 \text{ km/s}$$

Light Year = distance travelled by light
in 1 year. (in vacuum)

$$1 \text{ year} = 365 \frac{\text{days}}{\text{year}} \times 24 \frac{\text{hours}}{\text{day}} \times 60 \frac{\text{minutes}}{\text{hour}} \times 60 \frac{\text{seconds}}{\text{minute}}$$

$$= 31,536,000 \text{ s/year}$$

$$\approx 3.15 \times 10^6 \text{ s} \approx 3.15 \times 10^7 \text{ s}$$

$$\approx \pi \times 10^7 \text{ s}$$

$$\text{Light year} = (3.00 \times 10^8 \text{ m/s}) \times (3.15 \times 10^7 \text{ s}) = 9.45 \times 10^{15} \text{ m} \\ = 9.45 \times 10^{12} \text{ km}$$