Table of constants

We recommend to use these values of constants during the competition. However, results calculated with more precise values of these constants ***will*** *be accepted.*

constant	symbol	value
standard acceleration due to gravity	g	9.81 m/s^2
inch	in	2.54 cm
speed of light	c	$3 \cdot 10^8$ m/s
gravitational constant	G	$6.67 \cdot 10^{-11}$ N m^2/kg^2
radius of the Sun	$R_\odot$	696 000 km
radius of the Earth	$R_\oplus$	6378 km
mass of the Earth	$M_\oplus$	$5.97 \cdot 10^{24}$ kg
astronomical unit	au	$1.5 \cdot 10^{11}$ m
solar constant	$F_\odot$	1361 W/m^2
temperature of the Sun	$T_\odot$	5777 K
Avogadro constant	N_A	$6.022 \cdot 10^{23}$/mol
universal gas constant	R	8.31 J/(K mol)
Boltzmann constant	k_B	$1.38 \cdot 10^{-23}$ J/K
Stefan–Boltzmann constant	σ	$5.67 \cdot 10^{-8}$ W/(m^2 K^4)
permittivity of free space	ε_0	$8.854 \cdot 10^{-12}$ F/m
permeability of free space	μ_0	$1.25 \cdot 10^{-6}$ H/m
elementary charge	e	$1.602 \cdot 10^{-19}$ C
electron rest mass	m_e	$9.11 \cdot 10^{-31}$ kg
atomic mass unit	u	$1.66 \cdot 10^{-27}$ kg
density of water at STP	ρ_w	1000 kg/m^3
density of the air at STP	ρ_a	1.3 kg/m^3
density of gold at STP	ρ_{Au}	19 300 kg/m^3
molar mass of gold	μ_{Au}	197 g/mol
heat capacity of water	$c_{\mathrm{H_2O}}$	4180 J/(kg K)
atmospheric pressure	p_0	101 325 Pa