

Back-of-the-envelope numbers

<i>Symbol</i>	<i>What</i>	<i>Value</i>	<i>Units</i>
π	pi	3	
G	Newton's constant	$7 \cdot 10^{-11}$	$\text{kg}^{-1} \text{m}^3 \text{s}^{-1}$
c	speed of light	$3 \cdot 10^8$	m s^{-1}
k_B	Boltzmann's constant	10^{-4}	eV K^{-1}
e	electron charge	$1.6 \cdot 10^{-19}$	C
σ	Stefan-Boltzmann constant	$6 \cdot 10^{-8}$	$\text{W m}^{-2} \text{K}^{-4}$
m_{sun}	Solar mass	$2 \cdot 10^{30}$	kg
R_{earth}	Earth radius	$6 \cdot 10^6$	m
$\theta_{\text{moon/sun}}$	angular diameter	10^{-2}	
ρ_{air}	air density	1	kg m^{-3}
ρ_{rock}	rock density	5	g cm^{-3}
$\hbar c$		200	eV nm
$L_{\text{vap}}^{\text{water}}$	heat of vaporization	2	MJ kg^{-1}
γ_{water}	surface tension of water	10^{-1}	N m^{-1}
a_0	Bohr radius	0.5	\AA
a	typical interatomic spacing	3	\AA
N_A	Avogadro's number	$6 \cdot 10^{23}$	
\mathcal{E}_{fat}	combustion energy density	9	kcal g^{-1}
E_{bond}	typical bond energy	4	eV
$\frac{e^2/4\pi\epsilon_0}{\hbar c}$	fine-structure constant α	10^{-2}	
p_0	air pressure	10^5	Pa
ν_{air}	kinematic viscosity of air	$1.5 \cdot 10^{-5}$	$\text{m}^2 \text{s}^{-1}$
ν_{water}	kinematic viscosity of water	10^{-6}	$\text{m}^2 \text{s}^{-1}$
day		10^5	s
year		$\pi \cdot 10^7$	s
F	solar constant	1.3	kW m^{-2}
AU	distance to sun	$1.5 \cdot 10^{11}$	m
P_{basal}	human basal metabolic rate	100	W
K_{air}	thermal conductivity of air	$2 \cdot 10^{-2}$	$\text{W m}^{-1} \text{K}^{-1}$
K	... of non-metallic solids/liquids	1	$\text{W m}^{-1} \text{K}^{-1}$
K_{metal}	... of metals	10^2	$\text{W m}^{-1} \text{K}^{-1}$
c_p^{air}	specific heat of air	1	$\text{J g}^{-1} \text{K}^{-1}$
c_p	... of solids/liquids	25	$\text{J mole}^{-1} \text{K}^{-1}$