$c = 3\times10^{10}$ cm/sec $e = 4.8\times10^{-10}$ esu $= 1.6\times10^{-19}$ coul $\frac{2}{3}\times10^{-7}$ $m_e = 10^{-27}$ gm

$\hbar = 10^{-27}$ erg-sec $k = 1.4\times10^{-16}$ erg/deg $G = 7\times10^{-8}$ erg-cm/gm^2

$N_0 = 6\times10^{23}$/mole $R = 2$ cal/mole-deg n_0 at N.T.P. $= 3\times10^{19}$/cm^3

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1 newton $= 10^5$ dynes

1 ft $= 30$ cm 1 pound $= 4.4$ newt.

$\mu_0 = 4\pi\times10^{-7}$ newt/amp^2 1 ohm$^{-1} = 9\times10^{11}$ cm/sec

$\epsilon_0 = 8.8\times10^{-12}$ coul^2/newt-m^2 $\sqrt{\mu_0/\epsilon_0} = 377$ ohms

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"classical electron radius" $r_0 = e^2/m_e c^2 \approx 3\times10^{-13}$ cm / $\alpha = e^2/\hbar c = 1/137$

"Compton wavelength" $\lambda_C = \hbar/m_e c \approx 4\times10^{-11}$ cm

"Bohr radius" $a_0 = \hbar^2/m_e e^2 \approx 5\times10^{-9}$ cm / Bohr magneton $e\hbar/2mc = 10^{-20}$ erg/gauss

"Rydberg w'length" $\lambda_R = \hbar^3 c/m_e e^4 \approx 7\times10^{-7}$ cm

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1 cal $= 4$ watt-sec $= 4\times10^7$ erg 1 ev $= 1.6\times10^{-12}$ erg

$m_e c^2 = .5$ Mev $e^2/a_0 = 26$ ev vis. photon ≈ 2 ev

$kT_{room} = .025$ ev band gap: Si: 1.1 ev Ge: 0.7 ev

black body radiates 6×10^{-12} watts/deg^4/cm^2

680 lumens = 1 watt (5550 Å)

$m_{nucleon} \approx 2000\ m_e$

$m_{kaon} \approx 1000\ m_e$

$m_{pion} \approx 270\ m_e$

$m_{muon} \approx 200\ m_e$

$R_{nucleus} = A^{\frac{1}{3}}\times10^{-13}$ cm

spin precession: e: 3 MHz/gauss; p: 4 kHz/gauss

$g = 10^3$ cm/sec^2 $P_{at} = 10^6$ dyne/cm$^2 \approx 15$ psi

air density $= 10^{-3}$ gm/cm^3 scale height $= 8$ km

air at 300°K: $v_{sound} \approx v_{molec} \approx 4\times10^4$ cm/sec

mean free path (air, NTP) $\approx 7\times10^{-6}$ cm

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pc (ev) $= 300$ Br (gauss-cm)

min. ioniz. loss: 2 Mev/gm/cm^2

rad. length in air: 36 gm/cm^2

1 curie $= 4\times10^{10}$ disint./sec

1 parsec $= 3\times10^{18}$ cm

1 mag $= -4$ db

$m_{abs} = m_{app}$ at 10 pc

$m_\odot = 5$

---

resistivity, usual temperature:

Cu: 2×10^{-6}; pure H_2O: 2×10^7; sea water: 25 ohm-cm

specific heat (solid or liquid) ≈ 0.5 cal/cm^3/deg

linear expansion (") $\lesssim 2\times10^{-5}$/deg

heat conduction (insulator) $\approx 10^{-2}$ cal/sec-cm-deg

heat cond. (metal) $\approx 1.0\,(\rho_{Cu}/\rho_{metal})$ cal/sec-cm-deg

heat of combustion (food or fuel) $\approx 10^4$ cal/gm

heat of vaporization $\approx 10^4$ cal/mole

elastic moduli (solids) $\approx 10^{11}$ - 10^{12} dyne/cm^2

tensile strength (solids) $\approx 10^8$ - 10^{10} dyne/cm^2

surface tension $H_2O \approx 50$ dynes/cm

diffusion: H_2O 10^{-5}, air 0.2 cm^2/s

viscosity: H_2O 10^{-2}, air 2×10^{-4} dyne-s/cm^2

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earth field at pole $= .5$ gauss

$M_\oplus = 6\times10^{27}$ gm $R_\oplus = 6\times10^8$ cm

$M_\odot = 2\times10^{33}$ gm $R_\odot = 8\times10^{10}$ cm

$L_\odot = 4\times10^{33}$ erg/sec $= 1$ kw/m^2 at earth

starlight energy density: 10^{-12} erg/cm^3

primary cosmic rays: 1/cm^2/sec

distance to moon: 4×10^{10} cm

distance to sun: 1.5×10^{13} cm

to center of Galaxy: 3×10^{22} cm

mass of Galaxy: 2×10^{44} gm

dist. between galaxies: 10^{25} cm

$R_{universe} \approx 3000$ Mpc $\approx 10^{28}$ cm

E.M.P. 1981

Numbers suitable for use on 1st block of envelopes and in Ph 103a.