

Cheatography

Pphys3T Cheat Sheet

by userunknown via cheatography.com/163016/cs/35106/

Mechanics

$$v = u + at$$

$$s = \frac{1}{2}(u + v)t$$

$$s = ut + \frac{1}{2}at^2$$

$$v^2 = u^2 + 2as$$

$$\text{Power: } P = Fv$$

$$\text{Power: } P = E/t$$

$$p = mv$$

$$\text{Moment} = Fd$$

$$\rho = m/V$$

$$\text{impulse: } Ft = mv - mu$$

$$\text{work done: } W = F \cos \theta d$$

$$\text{work done: } W = Fd$$

Electris

$$V = IR$$

$$Q = It$$

$$P = VI$$

$$P = I^2R$$

$$P = V^2/R$$

$$\mathcal{E} = I(R + r)$$

$$\mathcal{E} = IR + Ir$$

$$\mathcal{E} = V + Ir$$

$$\mathcal{E} = E/Q$$

$$\mathcal{E}_1 + \mathcal{E}_2 = V_1 + V_2 + V_3$$

$$W = VQ$$

$$W = \mathcal{E}Q$$

$$W = VIt$$

$$I = Anev$$

Capas

$$Q = CV$$

$$E = QV$$

$$E = \frac{1}{2}CV^2$$

$$C = kR$$

$$C = (8.85 \times 10^{-12})A/d$$

$$E = \frac{1}{2}QV$$

$$\text{crg: } Q = Q_0(1 - e^{-t/CR})$$

$$\text{discrg: } Q = Q_0e^{-t/CR}$$

Grav f

$$g = f/M$$

$$F = GMm/r^2$$

$$g = -GM/r^2$$

$$E_{\text{grav}} = -GMm/r$$

$$T^2 \propto R^3$$

$$g \propto M$$

$$g \propto 1/r^2$$

$$V_{\text{grav}} = -GM/r$$

$$E = mV_{\text{grav}}$$

phys math

$$\text{arc } l = r\theta$$

$$\text{circum.cir} = 2\pi r$$

$$A.\text{cir} = \pi r^2$$

$$\text{cuvd surf. A. cylnd} = 2\pi rh$$

$$s.A.\text{sphe} = 4\pi r^2$$

$$A.\text{trap} = \frac{1}{2}(a + b)h$$

$$\text{vol.cylnd} = \pi r^2 h$$

$$\text{vol.sphe} = (4/3)\pi r^3$$

$$a^2 = b^2 + c^2$$

$$\cos: a^2 = b^2 + c^2 - 2bccosA$$

$$\text{sine: } a/\sin A = b/\sin B = c/\sin C$$

$$1\text{eV} = 1.60 \times 10^{-19} \text{ J}$$

$$1\text{day} = 8.64 \times 10^4 \text{ s}$$

$$1\text{year} \approx 3.16 \times 10^7 \text{ s}$$

$$1\text{light-year} \approx 9.5 \times 10^{15} \text{ m}$$

$$1\text{parsec} \approx 3.1 \times 10^{16} \text{ m}$$

$$G: 6.67 \times 10^{-11} \text{ Nm}^2\text{kg}^{-2}$$

$$h: 6.63 \times 10^{-34} \text{ Js}$$

$$c: 3.00 \times 10^8 \text{ ms}^{-1}$$

$$e: 1.60 \times 10^{-19} \text{ C}$$

Clruclar, SHM

springs

$$F = kx$$

$$E = \frac{1}{2}fx$$

$$E = \frac{1}{2}kx^2$$

Elec Field

$$E = F/Q$$

$$F = kQ^2/r^2$$

$$E = kQ/r^2$$

$$E_{\text{uniform}} = V/d$$

$$V = kQ/r$$

$$\text{Energy} = kQ^2/r$$

$$\text{mag: } F = BIL\sin\theta$$

$$\text{mag: } F = BQV$$

Parti

$$E = mc^2$$

$$E = hf$$

$$eV = \frac{1}{2}mv_{\text{max}}^2$$

$$\frac{1}{2}mv_{\text{max}}^2 = hf - \Phi$$

$$E = hc/\lambda$$

$$f_0 (\text{thrsh}) = \Phi/h$$

Waves

$$v = f\lambda$$

$$T = 1/f$$

$$c = f\lambda$$

$$\text{diffrac: } \lambda = dx/l$$

$$\text{diffrac-g: } n\lambda = d\sin\theta$$

$$I = P/A$$

$$n = c/v$$

$$n_1\sin\theta_1 = n_2\sin\theta_2$$

$$\sin C = 1/n$$

$$n\sin\theta = k$$

$$\lambda = ax/D$$

$$\theta < C: \text{frac} \& \text{ par } t.\text{freq}$$

$$\theta = C: \text{frac.o n.bound}$$

$$\theta > C: \text{TIR}$$

Math Math

$$F_{\text{centripetal}} = mv^2/r$$

$$F = m\omega^2 r$$

$$\omega = 2\pi f$$

$$\omega = 2\pi/T$$

$$\omega = v/r$$

$$\omega = \theta/t$$

$$a = -\omega^2 x$$

$$a = v^2/r$$

$$T_{\text{spring}} = 2\pi\sqrt{m/k}$$

$$T_{\text{pend}} = 2\pi\sqrt{l/g}$$

$$E_{\text{heat}} = mc\Delta t$$

$$E_{\text{elst}} = Fx/2$$



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