Physics 40S — Formula Sheet

$$\sin\theta = \frac{O}{H} \qquad \cos\theta = \frac{A}{H} \qquad \tan\theta = \frac{O}{A} \qquad a^2 + b^2 = c^2$$

$$a^2 = b^2 + c^2 - 2bc \cdot \cos A \qquad \frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c} \qquad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\Delta d = d_f - d_i \qquad \bar{v} = \frac{\Delta d}{\Delta t} \qquad \bar{a} = \frac{\Delta v}{\Delta t}$$

$$d = v_i t + \frac{1}{2}at^2 \qquad d = \left(\frac{v_f + v_i}{2}\right) \cdot t \qquad v_f = v_i + at \qquad v_f^2 = v_i^2 + 2ad$$

$$\sum F = ma \qquad F_g = mg \qquad F_f = \mu \cdot F_N$$

$$a_c = \frac{v^2}{r} \qquad F_c = \frac{mv^2}{r} \qquad v = \frac{2\pi r}{T} \qquad T = \frac{1}{f}$$

$$p = mv \qquad F\Delta t = m\Delta v$$

$$W = Fd \cdot \cos\theta \qquad W = \Delta E$$

$$E_k = \frac{1}{2}mv^2 \qquad E_g = mgh \qquad E_s = \frac{1}{2}kx^2 \qquad F_s = kx$$

$$k = \frac{T^2}{R^3} \qquad \left(\frac{T_a}{T_b}\right)^2 = \left(\frac{R_a}{R_b}\right)^3 \qquad F_g = \frac{GMm}{r^2} \qquad E_g = -\frac{GMm}{r}$$

$$F_E = \frac{kQq}{r^2} \qquad F_E = qE \qquad E = \frac{kQ}{r^2} \qquad PE_E = \frac{kQq}{r}$$

$$V = \frac{kQ}{r} \qquad \Delta V = \frac{\Delta PE_E}{q} \qquad E = \frac{\Delta V}{d}$$

$$W = q\Delta V \qquad \Delta V = E \cdot d \qquad q = N \cdot e$$

$$F = BIL \cdot \sin\theta \qquad F = qvB \cdot \sin\theta$$

$$I = \frac{Q}{t} \qquad V = IR \qquad R = \rho\frac{L}{A} \qquad R_s = R_1 + R_2 + ... + R_n$$

$$\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + ... + \frac{1}{R_n} \qquad P = \frac{E}{t} \qquad P = IV = \frac{V^2}{R} = I^2R$$

$$EMF = vBL \qquad \Phi = BA\cos\phi \qquad EMF = -N\frac{\Delta\Phi}{\Delta t} \qquad \frac{I_p}{I_s} = \frac{V_s}{V_p} = \frac{N_s}{N_p}$$