FORMULA SHEET (updated Apr.23/97) DEREK PAYNE

$s = {}^{d}/_{t}$ $a_{av} = {}^{\blacktriangle V}/_{t}$ $D = V_o t + {}^{1}/_{2} a t^2$ $\blacktriangle D = D_f - D_o$ $V_{av} = \frac{V_f + V_o}{2}$

$V_f^2 = V_o^2 + 2aD$ $V_{av} = {}^{\blacktriangle D}/_{t}$ $V_f = V_o + at$ $V_{ins(tan)} = {}^{\blacktriangle D}/_{t}$

$R = \sqrt{F_y^2 + F_x^2}$ $\tan\theta = \frac{F_y}{F_x}$ $Fx = F\cos\theta$ $Fy = F\sin\theta$

$\Sigma F = ma$ $(w = mg)$ $Ff = \mu_k N$ $Ff = \mu_s N$ $\tau = Fl$

$\theta_{rad} = {}^{s}/_{r}$ $a_r = V^2/r = (r\omega)^2/r = r\omega^2$ $V = r\omega$

$d \rightarrow r = \pi/180$ $r \rightarrow d = 180/\pi$ $rpm \rightarrow rad/min = 2\pi/1$ rev

$P = \rho g h$ $P_T = \rho g h + P_a$ $\rho = {}^{m}/_{V}$ $F_B = \rho g V$ $(V = A \blacktriangle h)$ $Pa = {}^{F}/_{A} ({}^{N}/_{m2})$

$F_B = w_a - w_w$ $P_t = P_g + P_{atm}$ $W = Fd$

$\blacktriangle KE + \blacktriangle PE + \blacktriangle W + \blacktriangle Q + \blacktriangle V + \blacktriangle ME = 0$ $PE = mg\blacktriangle h$ $Q = cm\blacktriangle T$ $KE = {}^{1}/_{2} m V^2$ (J)

$R_{ser} = R_1 + R_2$ $\frac{1}{R_{par}} = \frac{1}{R_1} + \frac{1}{R_2}$ $V = IR$ $(V)(\Omega) = (W)$ $(A)(\Omega) = (V)$

${}^{a}/_{\sin A} = {}^{b}/_{\sin B} = {}^{c}/_{\sin C}$

$a^2 = b^2 + c^2 - bc\cos A$

$b^2 = a^2 + c^2 - ac\cos B$

$c^2 = a^2 + b^2 - ab\cos C$

$P_{rec} = 2(l + w)$ $A = lw$ $V = lwh$ $LA = 2(lh + lw + wh)$

$P_{cir} = 2\pi r$ $A = \pi r^2$ $V_{sph} = {}^{4}/_{3}\pi r^3$ $A = 4\pi r^2$

$P_{sq} = 4s$ $A = s^2$ $V_{cube} = s^3$

$A_{tri} = {}^{1}/_{2} bh$ $V_{pyr} = {}^{1}/_{3} Bh$ $LA = {}^{1}/_{2} ps$

$A_{trap} = {}^{h}/_{2}(B + b)$ $V_{cone} = {}^{1}/_{3}\pi r^2 h$ $LA = \pi rs$

$A_{cyl} = 2\pi r^2 + 2\pi rh$ $V = \pi r^2 h$

$V_{prism} = Bh$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $y = ax^2 + bx + c$ $(a \neq 0)$ $y = mx + b$ $(m \neq 0)$ $m = {}^{\blacktriangle y}/_{\blacktriangle x}$