Physics 250 Chapters 4 and 5 Test Equation Sheet

Velocity and acceleration: $v_{av} = \frac{\Delta x}{\Delta t}$ $a_{av} = \frac{\Delta v}{\Delta t}$

Constant velocity: $x_B = x_A + v_{AB}\Delta t_{AB}$

Constant acceleration: $v_B = v_A + a_{AB}\Delta t_{AB}$

$$x_B = x_A + v_A\Delta t_{AB} + \frac{a_{AB}}{2}\Delta t_{AB}{}^2$$

$$v_B^2 = v_A^2 + 2a_{AB}\Delta x_{AB}$$

$$x_B = x_A + \left(\frac{v_A + v_B}{2}\right)\Delta t_{AB}$$

Forces: $\overrightarrow{F_{net}} = m\vec{a}$

$w = mg$ $f_s \leq \mu_s n$ $f_k = \mu_k n$ $f_r = \mu_r n$

Circular motion: $a_{rad} = {v^2}/{r}$ $F_{rad} = {mv_{tan}^2}/{r}$

Constants: $g = 9.80\ m/s^2$