

Physics – First Semester Exam

Equation Page

Name: \_\_\_\_\_

Kinematics

$$v_{\text{avg}} = \Delta x / \Delta t$$

$$a = \Delta v / \Delta t$$

$$v_1 = v_0 + at$$

$$v_1^2 = v_0^2 + 2a(\Delta x)$$

$$\Delta x = \frac{1}{2} (v_1 + v_0)t$$

$$\Delta x = v_0 t + \frac{1}{2} at^2$$

$$a_g \text{ or } g \text{ on Earth} = 9.8 \text{ m/s}^2$$

Vectors

$$A^2 + B^2 = R^2$$

$$\sin \Theta = (O / H)$$

$$\cos \Theta = (A / H)$$

$$\tan \Theta = (O / A)$$

SOHCAHTOA

$$\Theta = \sin^{-1} (O / H)$$

$$\Theta = \cos^{-1} (A / H)$$

$$\Theta = \tan^{-1} (O / A)$$

Forces

$$F_{\text{net}} = F_1 + F_2 \dots$$

$$F_{\text{net}} = m a$$

$$F_f = \mu F_N$$

$$F_{\text{el}} = k \Delta x$$

$$F_c = \frac{m v^2}{r}$$

Momentum

$$p = m v$$

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

$$[m_1 v_1 + m_2 v_2]_{\text{before}} = [m_1 v_1 + m_2 v_2]_{\text{after}}$$

$$[m_1 v_1 + m_2 v_2]_{\text{before}} = (m_1 + m_2) v_{\text{after}}$$