

Name:

Date:

Period:

# Equation Sheet - Fall Final Exam

## Science & Measurement

$$\% \text{ error} = \frac{|\text{measured} - \text{expected}|}{\text{expected}} \times 100$$

Metric Prefixes		
k	kilo-	$10^3$
–	(base)	$10^0$
c	centi-	$10^{-2}$
m	milli-	$10^{-3}$
μ	micro-	$10^{-6}$
n	nano-	$10^{-9}$

## Motion & Kinematics

### Constant Velocity & Acceleration

$$v = \frac{d}{t}$$

$$a = \frac{\Delta v}{t}$$

$$\Delta v = v_f - v_i$$

### Constant Acceleration

$$v_f = v_i + at$$

*“Old Faithful”*

$$d = v_i t + \frac{1}{2} at^2$$

*“The Big Chalupa”*

$$v_f^2 = v_i^2 + 2ad$$

*“Ain’t Got No Time”*

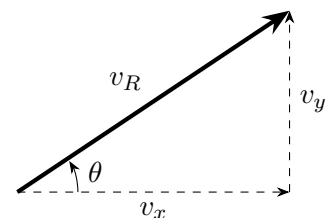
### Vector Equations

$$v_x = v_R \cos(\theta)$$

$$v_y = v_R \sin(\theta)$$

$$\theta = \tan^{-1}(v_y/v_x)$$

$$v_x^2 + v_y^2 = v_R^2$$



## Forces

$$F_{NET} = ma$$

$$F_{NET} = \pm F_1 \pm F_2 \pm \dots$$

$$F_G = mg$$

$$g = 9.8 \text{ m/s}^2$$

## Circular Motion & Gravity

$$T = \frac{t}{\# \text{rot}}$$

$$v_T = \frac{2\pi r}{T}$$

$$v_T = r\omega$$

$$\omega = \frac{\# \text{rot}}{t} \times 2\pi$$

$$F_C = \frac{mv_T^2}{r}$$

$$F_G = \frac{Gm_1m_2}{r^2}$$

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