Name _____

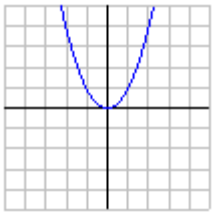
Hour _____

AP Physics: Math Review

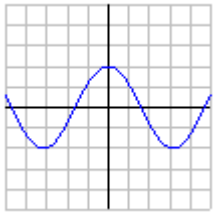
Graph Identification:

1. Each of the twelve graphs shown below can be described by one of the equations at right. Match each equation to its appropriate graph.

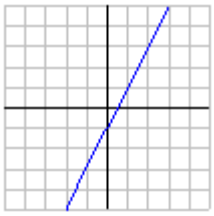
$y = \frac{1}{2} \cdot x + 1$	$y = x^2$	$y = \cos(x) + 1$
$y = \frac{1}{2} \cdot x - 1$	$y = -x^2$	$y = \sin(x) + 1$
$y = 2 \cdot x + 1$	$y = 2 \cdot x^2$	$y = 2 \cdot \cos(x)$
$y = 2 \cdot x - 1$	$y = -2 \cdot x^2$	$y = 2 \cdot \sin(x)$



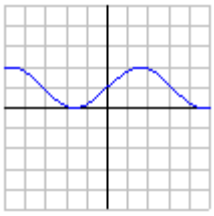
a) _____



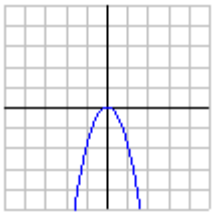
b) _____



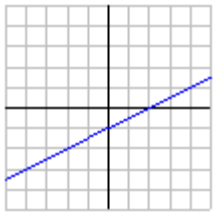
c) _____



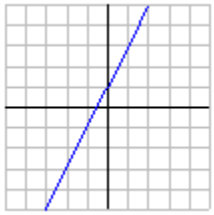
d) _____



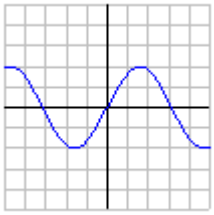
e) _____



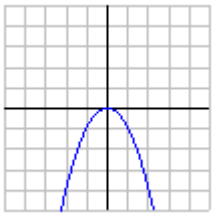
f) _____



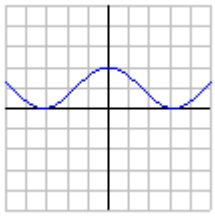
g) _____



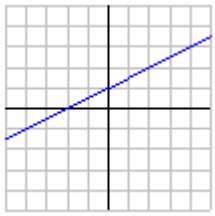
h) _____



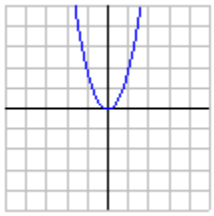
i) _____



j) _____



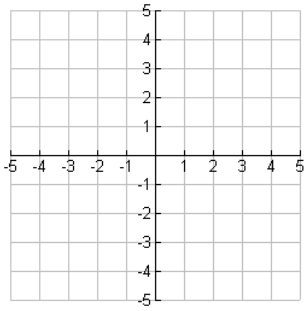
k) _____



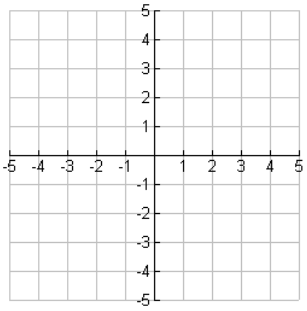
l) _____

2. The general form of a linear equation is $y = m \cdot x + b$, where m represents the slope of the line and b represents the y-intercept. Use this form to graph each equation shown below.

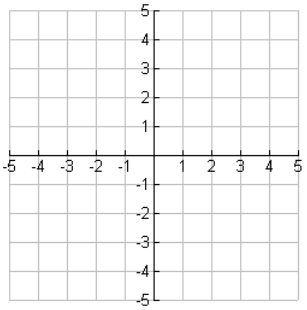
a) $y = 2 \cdot x + 2$



b) $y = -2 \cdot x - 3$



c) $y = \frac{1}{2} \cdot x - 1$



Algebra Skills:

1. Solve for each unknown variable.

a) $154 - 9.8 \cdot t = 23.0$

b) $18 = \frac{1}{2} \cdot (7.5) \cdot x^2$

c) $32.5 = \frac{15.1}{t}$

d) $14.0 = (2.5) \cdot F \cdot \sin(40°)$

e) $1.5 = \frac{(8.85 \text{ x } 10^{-12}) \cdot A}{(.21)}$

f) $2.5 = 2 \cdot \pi \sqrt{\frac{m}{120}}$

2. Solve each system of equations for the given variables.

a) $39.2 - T = 4 \cdot a$
$T - 12.6 = 3 \cdot a$

b) $T \cdot \cos(53^\circ) = R$
$T \cdot \sin(53^\circ) - 600 = R + 300$

Algebra Skills: ***(cont)***

3. Solve each equation for the given variable.

a) $f_n = \left(\frac{n}{2L}\right) \cdot \sqrt{\frac{F}{\mu}}$ for F

b) $F = \frac{m \cdot v^2}{r}$ for v

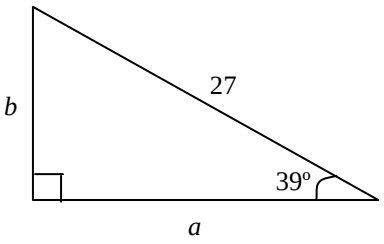
c) $P = P_0 + \rho \cdot g \cdot h$ for h

Right Triangle Trigonometry:

1. The three basic trigonometric functions for a right triangle can be expressed using an angle *(θ),* and the opposite, adjacent, and hypotenuse sides of the triangles. These functions are: $\cos\theta = \frac{adj}{hyp}$ $\sin\theta = \frac{opp}{hyp}$ $\tan\theta = \frac{opp}{adj}$

Use these functions to solve for each unknown variable in the right triangles shown below.

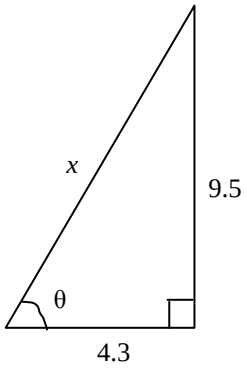
a)



a = _____

b = _____

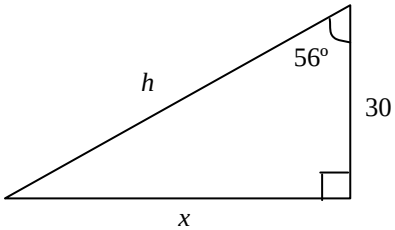
b)



x = _____

θ = _____

c)



x = _____

h = _____