Name_____

Hour_____

Final Exam Review Algebra II A Paced

Point-slope form is: $y - y_1 = m(x - x_1)$
Slope-intercept form is: $y = mx + b$
Which form are the following equations in?

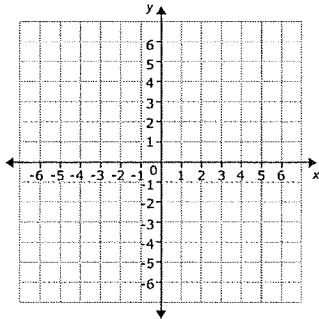1. $y - 3 = 4(x - 0)$ 2. $y = 5x - 2$

3. $y = x + 1$

Write the equation for the line in point-slope form and in slope-intercept in the following situations:

4. You have a point of (-2, 1) and a slope of $\frac{1}{2}$. Graphing first will help.
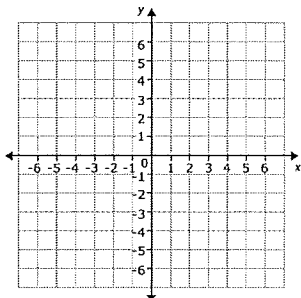
                        Point-slope form: Slope-intercept form:

5. You have a point of (-1,3) and a slope of $\frac{-2}{5}$. Graphing first will help.

                        Point-slope form: Slope-intercept form:
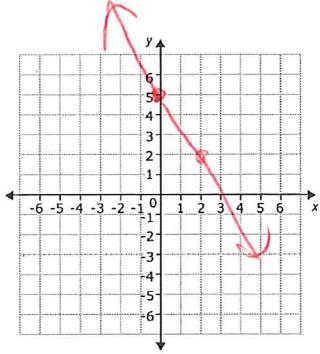
Write the equation for the line in point-slope form and slope-intercept:
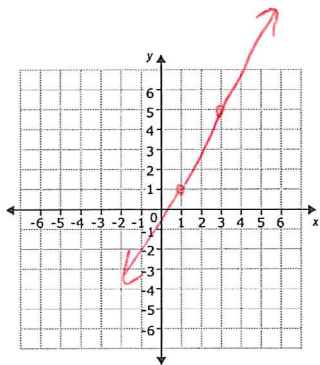
6.

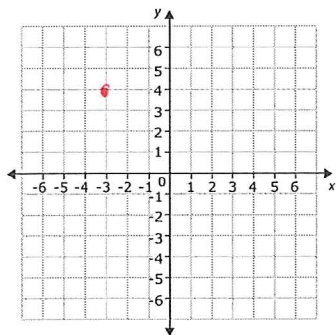Point-slope form:

Slope-intercept form:
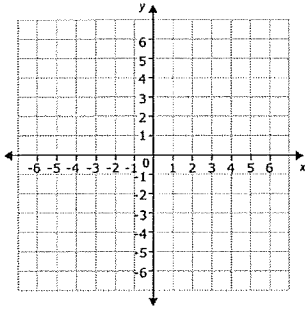
7.

Point-slope form:

Slope-intercept form:

8. You have two points (-3, 4) and (2, 3). Graphing first will help.

Point-slope form:
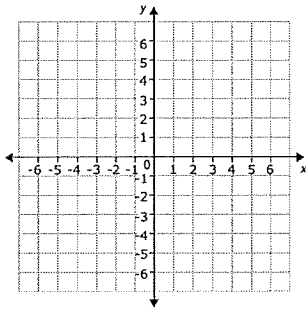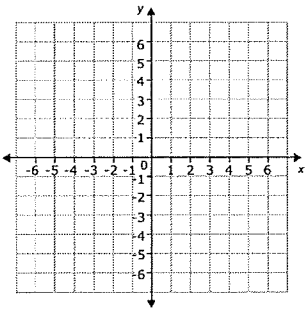
Slope-intercept form:

9. Graph -9x + 9y = 27 by first finding x- and y-intercepts.

10. Graph -3x + 9y = 27 by first finding x- and y-intercepts.

11. Graph 9x - 3y = 27 by first finding x- and y-intercepts.

Functions

A function is something that must pass the **vertical line test (VLT).** The vertical line test simply means we pass a vertical line across our graph and then we have two possibilities:
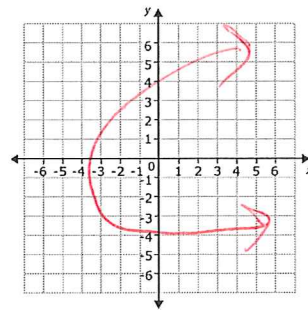
1) The vertical line touches the graph at only one spot at a time = It is a function!   OR
2) The vertical line touches the graph more than once at a certain time = It is not a function.

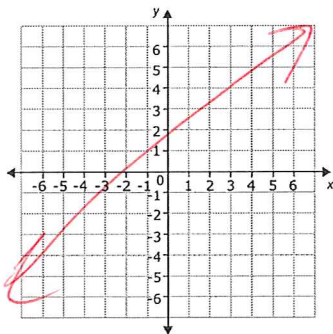1) Decide whether the following are functions or not by using the vertical line test.
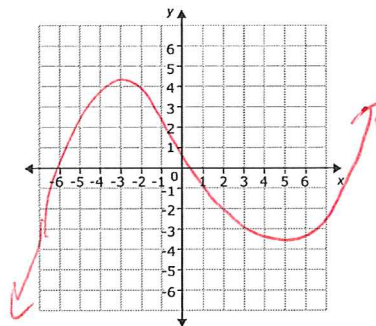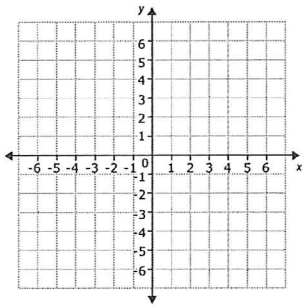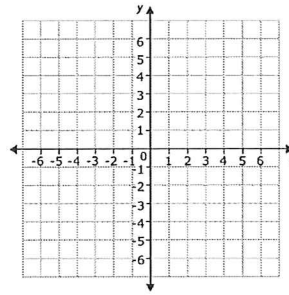
a)
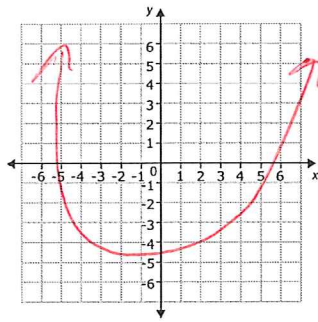
b)

c)

d)

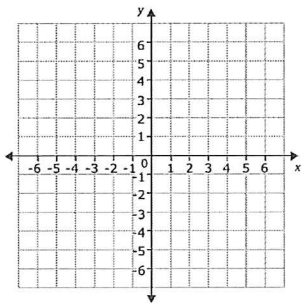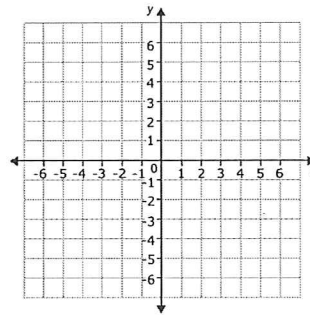2) Use a graphing calculator to graph the following functions.

a) $y = 3x + 1$

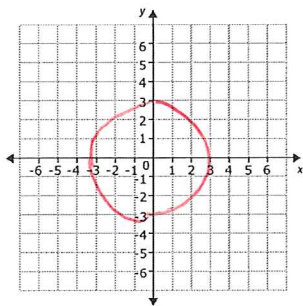b) $y = 3x^2 - 4$

b) $y = \sqrt{x}$

d) $y = x^3$

3) Use a calculator to find the table of x- and y-values for these functions.
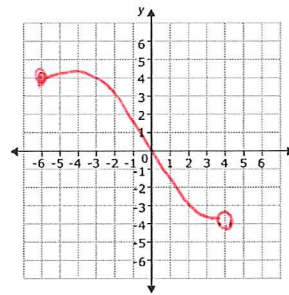
e) $y = x + 2$

f) $y = x^2 + 1$

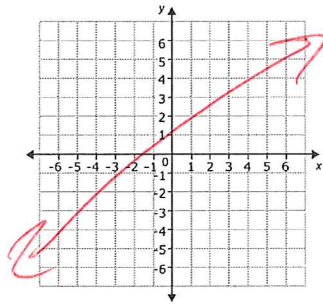4) Find the domain and the range for the following:

a)

b)

4) (Continued): Find the domain and range of the following:

c)

d)
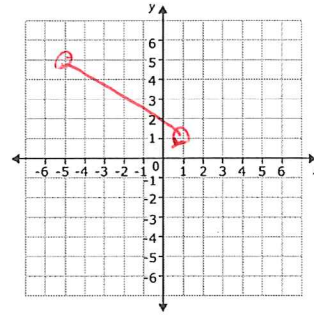
e)

f)

5) Add and subtract the following functions.

a) $(7x^2 + 2x - 4) + (8x - 2 + 7x^2)$

b) $(4x^2 - 3x + x^4) - (3x^3 + 6x - 2x^2)$

c) $(2x^2 - 9x) + (2x - 4x^2)$

d) $(5x^2 - 10) - (6x^2 + 2 - 3x)$

6) Multiply/dividing the following functions. Suppose that $f(x) = x^4$, $g(x) = x$, and $h(x) = 12 - x^2$

a) Find $h(x) \cdot g(x)$

b) Find $\dfrac{f(x)}{h(x)}$.

c) Find $\dfrac{g(x)}{h(x)}$.

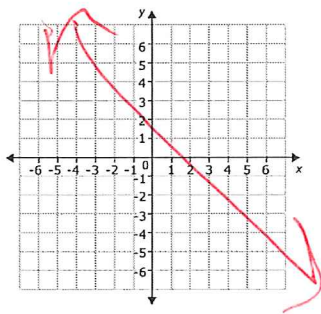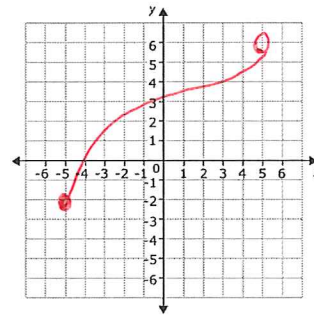# Inverse Functions and Families of Functions

1. Find the inverse of the following relations.   1. a.

a)

x	y
0	4
8	7
6	5
9	10

b)

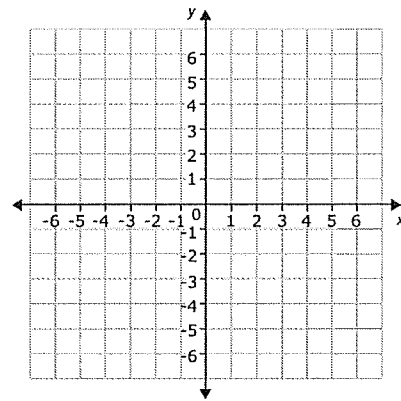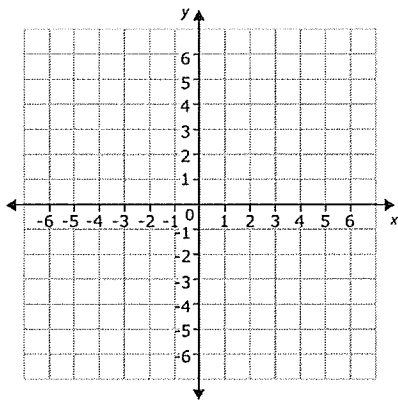| x	y
-2	-4
4	6
-8	-10
4	5

b.

2.   With the use of a calculator, graph the original function and its inverse.

a) $y = x^2 - 4$

b) $y = \sqrt{x + 1}$
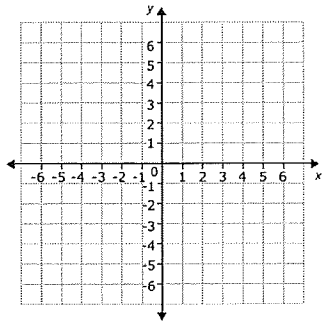
3. Solve for the inverse function.
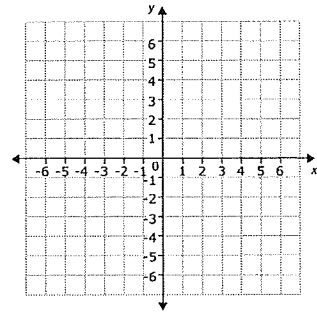
a) $y = -3x - 2$

b) $y = -3x^2 - 2$

c) $y = 2(x - 8)$

4. Draw a sketch of the following functions. You should not need a calculator to do so.
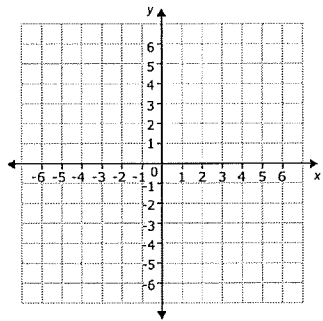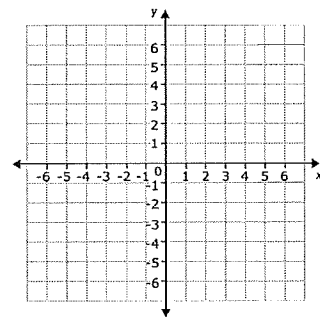
a) $y = (x - 2)^2$

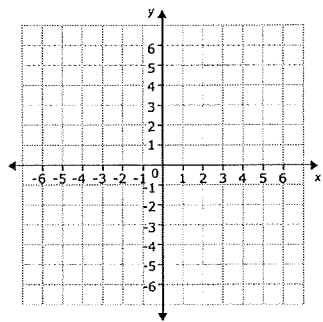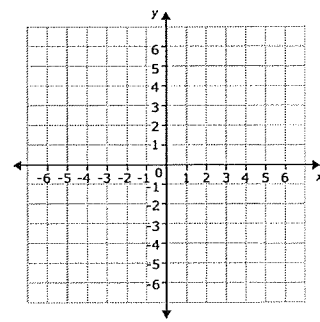**b)** $y = (x - 1)^2$

c) $y = x^2 + 3$

d) $y = (x + 1)^2 - 3$

e) $y = x - 2$

f) $y = x + 1$

5. Will the equation $y = x$ or $y = x^2$ be stretched or compressed:

a) $y = (7/8)x$

b) $y = 10x^2$

6. Write the function rule for each function reflected over the x-axis:

a) $y = 3x - 1$

b) $y = 4x + 1$

Matrcies final Exam Review

Simplify.

1) $4\begin{bmatrix} 3 & -1 & 1 \end{bmatrix}$

2) $\begin{bmatrix} -5 \\ -6 \end{bmatrix} - \begin{bmatrix} 0 \\ -2 \end{bmatrix}$

3) $\begin{bmatrix} -6 & -3 & -3 \end{bmatrix} + \begin{bmatrix} 4 & 3 & -1 \end{bmatrix}$

4) $\begin{bmatrix} -6 & 2 \\ 4 & 1 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 \\ -3 & -3 \end{bmatrix}$

Find the inverse of each matrix.

5) $\begin{bmatrix} -3 & -3 \\ 4 & 2 \end{bmatrix}$

6) $\begin{bmatrix} -4 & -2 & 3 \\ 3 & -2 & -3 \\ 5 & 2 & -1 \end{bmatrix}$

Solve each equation.

7) $\begin{bmatrix} 5 & -2 \end{bmatrix} + C = \begin{bmatrix} 0 & -8 \end{bmatrix}$

8) $5C = \begin{bmatrix} 30 \\ 0 \\ -35 \end{bmatrix}$

9) $\begin{bmatrix} 4 & 11 \end{bmatrix} + 5B = \begin{bmatrix} -31 & -4 \end{bmatrix}$

10) $2X + \begin{bmatrix} -4 & 6 & 3 \end{bmatrix} = \begin{bmatrix} 18 & 24 & 11 \end{bmatrix}$

11) $\begin{bmatrix} -2 & 1 \\ -1 & 1 \end{bmatrix} X = \begin{bmatrix} -8 & 7 \\ -9 & -1 \end{bmatrix}$

12) $\begin{bmatrix} -8 & 10 \\ -1 & 0 \end{bmatrix} A = \begin{bmatrix} 34 \\ -7 \end{bmatrix}$