Algebra 3-4   Name: _____ Per:_____
Unit 2 Review: Functions & Inverses   Date: _____
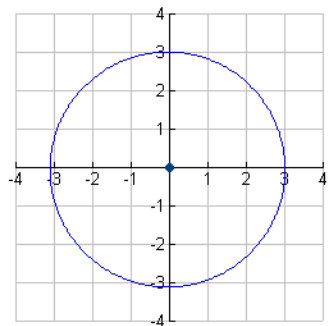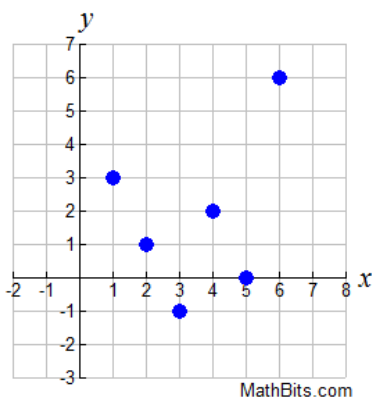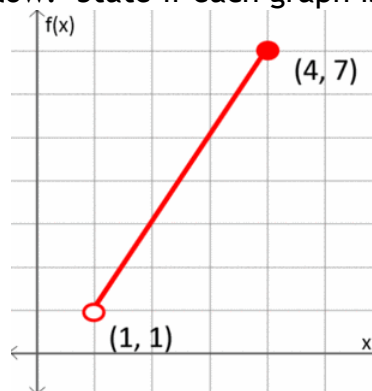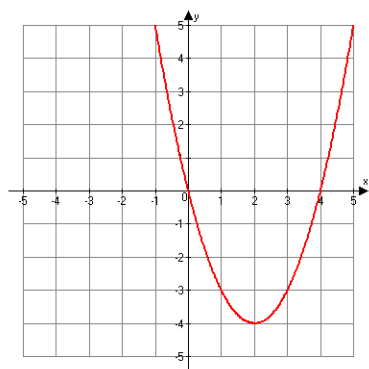
1. Tell whether the following are functions. Explain.

$\{(-2, 5), (-1, 1), (3, 1), (-1, -2)\}$
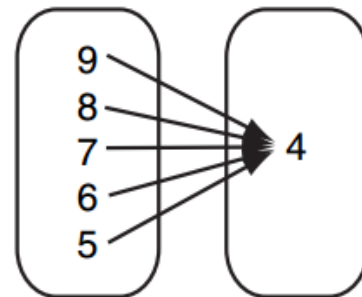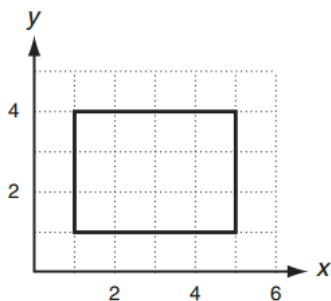
2. Find domain and range of the given graphs below. State if each graph is a function:

(4, 7)

(1, 1)

MathBits.com

3. Use the functions $f(x) = 2|x| - 5$, $g(x) = x^2 - 3$, $h(x) = 3x + 5$ to answer the questions below.

a. Evaluate *f(-7)*

b. Solve *h(x)* = -7

c. Evaluate *g(-4)*

d. Solve *g(x)* = 1

e. Solve *f(x)* = -5

f. Evaluate *h(-1)*

g. Find the domain of *f(x)*.
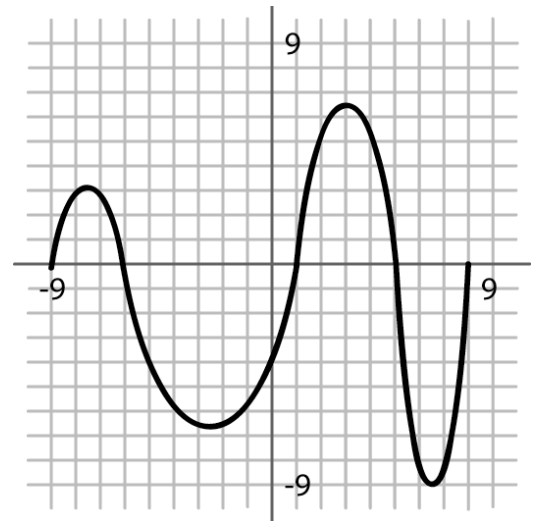
h. Find the range of *h(x)*

i. Find the range of *g(x)*

4. The following graph completely defines f(x).

a. Evaluate $f(8)$

b. Evaluate $f(0) - f(8)$

c. Solve $f(x) = 5$

5. Find the inverse of the following functions:

   a. $y = \frac{1}{2}x - 3$

   c. $h(x) = \frac{7x+18}{2}$

   b. $g(x) = \sqrt[3]{x} + 3$

   d. $f(x) = 2x^4 + 5$

6. Given two function machines $f(x) = x^2 - 1$ and $g(x) = 3(x + 2)$.

   a. If the two machines are connected so that $f(x)$ comes first, and 5 is dropped in, what comes out? (This is finding $g(f(5))$)

   a. If the two machines are connected so that $g(x)$ comes first, and 5 is dropped in, what comes out? (This is finding $f(g(5))$)

7. Given two function machines $f(x) = \frac{2}{x-7}$ and $g(x) = 2x + 5$ calculate:

    b. $g(3) =$

    d. $f(g(2)) =$

    c. $f(10) =$

    e. $g(f(11)) =$

8. Find and <u>verify</u> the inverse of the following functions:

    a. $f(x) = 3(4x + 5) - 1$

    b. $g(x) = \frac{\sqrt[3]{x+4}}{2}$