

Name: _____ Date: _____ Period: _____

Advanced Algebra II Honors: Inverse Functions Day 1 - Homework

1. Write an equation for the inverse of the relation.

a. $y = 12x - 6$

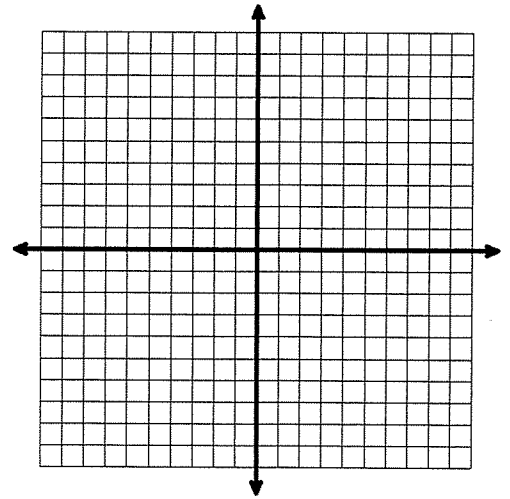
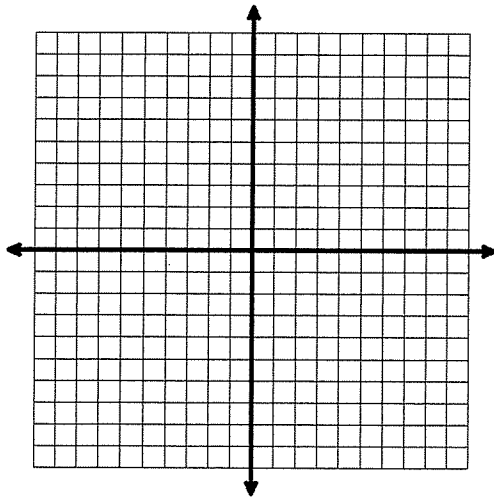
b. $y = -13x + 6$

c. $y = 4x - 1$

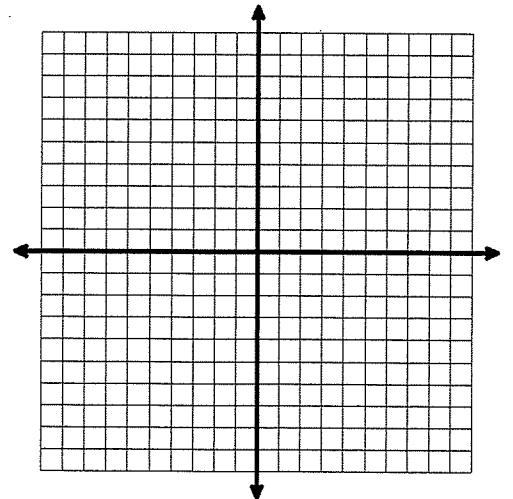
2. Sketch the function and its inverse in the same coordinate plane. Is the inverse a function of x ?

a. $f(x) = -x^2 + 3$

b. $f(x) = -x^2 - 4$



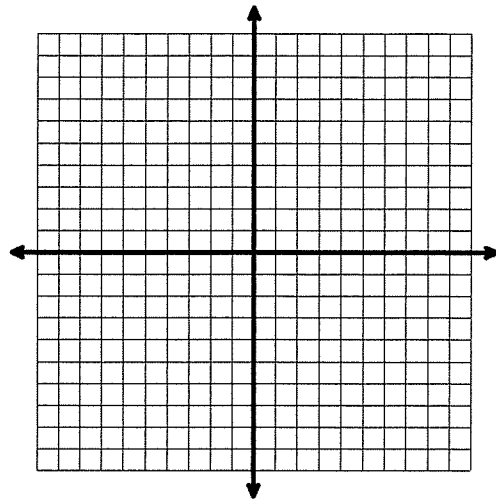
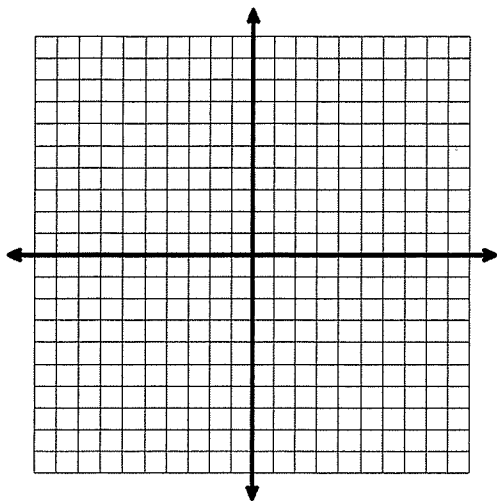
c. $f(x) = \frac{1}{2}x + 9$



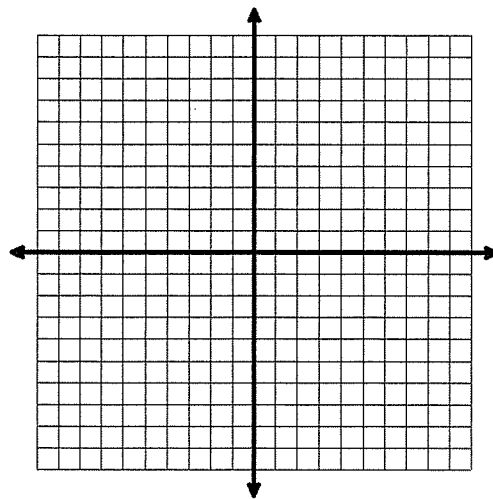
3. Sketch the graph of the function. Use the graph of f to decide whether the inverse of f is a function of x .

a. $f(x) = x + 1$

b. $f(x) = -2x^2 - 1$



c. $f(x) = |x| - 1$



4. Verify using composition of functions to determine if f and g are inverses of each other.

a. $f(x) = x + 9$ $g(x) = x - 9$

b. $f(x) = 2x - 1$ $g(x) = \frac{1}{2}x + \frac{1}{2}$

c. $f(x) = -3x + \frac{1}{2}$ $g(x) = -\frac{1}{3}x + \frac{1}{6}$

5. The formula to convert temperature in degrees Celsius to temperature in degrees Fahrenheit is $F(x) =$

$\frac{9}{5}x + 32$. For this formula, degrees Celsius is the input and degrees Fahrenheit is the output. Find $G(x)$ where the degrees Fahrenheit is the input and degrees Celsius is the output. Are these functions? Are these inverses of each other?

6. The height h of an equilateral triangle with sides of length x is $h(x) = \frac{\sqrt{3}x}{2}$. Find the function $g(x)$ so that the height is the input and the length of the side is the output. Are these functions? Are they inverses of each other?

7. You belong to a bowling league in which each bowler's handicap, H , is determined by his or her average, x according to the following function:

$$H(x) = 0.8(200 - x)$$

(If the bowler's average is over 200, the handicap is 0.) Find the function $A(x)$ so that the handicap is the input and the average is the output. If your handicap is 32, what is your average?

FUNCTIONS ARE YOUR FRIENDS!!!!!!!!!!!!

8. With a coupon, if you purchase one spaghetti dinner at the regular price, x , you can purchase the second dinner at half price.

- Write a function, $P(x)$, for the price of the two spaghetti dinners.
- Write a function, $C(x)$, that represents the total amount spent for the two dinners. In the total price, include a 15% tip (based on the full regular price of two dinners), and a 7% sales tax.
- Evaluate $C(x)$ from part b when x is \$5.