

Think of any questions you may have from the second half of the chapter.

### 9-5: Functions and Inverses

An inverse is a reflection over what line?

$$y = x$$

Because of that when given a function how do you find its inverse?

Switch  $x$  and  $y$

Find the inverse of  $f(x) = x^2 + 3$

$$x = y^2 + 3$$

$$x - 3 = y^2$$

$$y = \sqrt{x - 3}$$

The horizontal line test helps determine if a graph's inverse is a function. Do the same thing as the vertical line test, just hold pencil horizontally.



To check if two functions are inverses find both composite functions,  $f(g(x))$  and  $g(f(x))$ .

If you get  $x$  as your solution both times then the functions are inverses.

Determine if  $f(x) = 3x + 2$  and  $g(x) = \frac{1}{3}x - 2$  are inverses.

$$3\left(\frac{1}{3}x - 2\right) + 2$$

$$x - 6 + 2$$

$$x - 4$$

$$\frac{1}{3}x - 2$$

## 9-6: Modeling Real World Data

We will need to decide which function to use.  
For that go through the following checks that we  
have already learned...

1) Is the first difference constant?

Yes: Linear

No, go to 2.

LinReg

2) Is the second difference constant?

Yes: Quadratic

No, go to 3.

QuadReg

3) Is the ratio constant? Yes: Exponential

ExpReg

If there is no constant difference between the x values then you need to find each regression to determine which equation is best. Remember we want an r value as close to 1 as possible.

.98

A printing company prints advertising flyers and tracks its profits. Write a function that models the given data.

Flyers Printed	100	200	300	400	500	600
Profit (\$)	10	70	175	312	500	720

60 105 7 220

Quad Reg

$$.002x^2 + .007x - 11.2$$

We will still go with the test tomorrow so you can have a full 3 class periods to work on the conic section project. The review for the test will be:

p. 681 #1-12

p. 707 #1-18