# AIS

## Changing the Equation

Let's look at quadratics with negative inputs.

# 12.1

#### **Worked Example: Evaluate the Expression**

Evaluate  $x^2 + 7$  when x is -3.

Step 1:

 $(-3)^2 + 7$ 

Step 2:

9 + 7

Step 3:

16

# 12.2

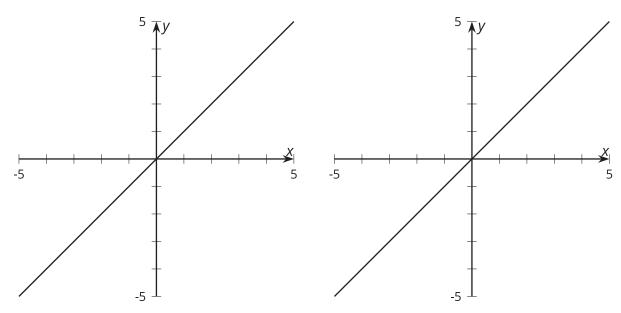
### **Equations and Their Graphs**

- 1. Using graphing technology, graph y = x. Then, experiment with the following changes to the function. Record your observations (include sketches, if helpful).
  - a. Adding different constant terms to x (for example: x + 4, x 3).
  - b. Multiplying x by different positive coefficients greater than 1 (for example: 6x, 2.5x).

- c. Multiplying x by different positive coefficients between 0 and 1 (for example: 0.25x, 0.1x).
- d. Multiplying x by negative coefficients (for example: -9x, -4x).
- 2. Use your observations to sketch these functions on the coordinate planes, which currently show y = x.

a. 
$$y = -0.5x + 2.1$$

b. 
$$y = 2.1x - 0.5$$



1. Evaluate each expression when x is -3.

a. 
$$x^2$$

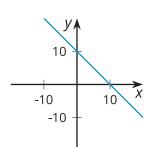
b. 
$$-x^2$$

c. 
$$x^2 + 20$$

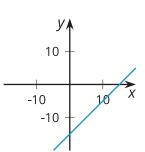
d. 
$$-x^2 + 20$$

2. For each graph, come up with an equation that the graph could represent. Verify your equation using graphing technology.

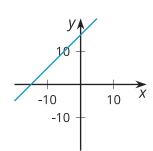
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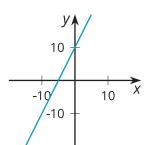
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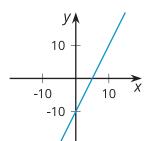
C



D



Ε



F

