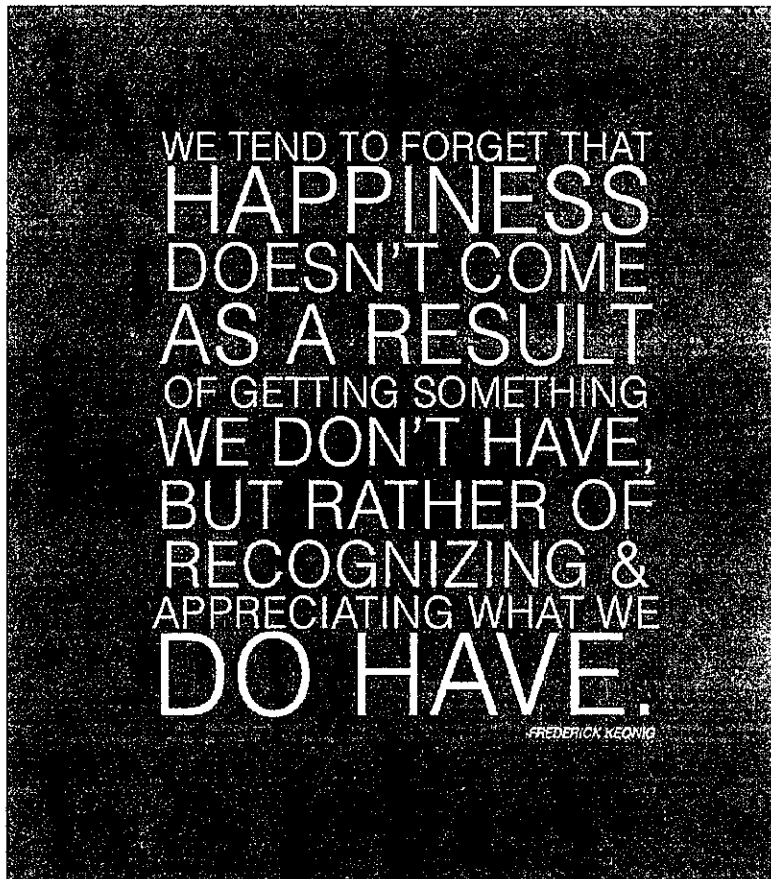


Name: _____

Hour: _____

Chapter 4

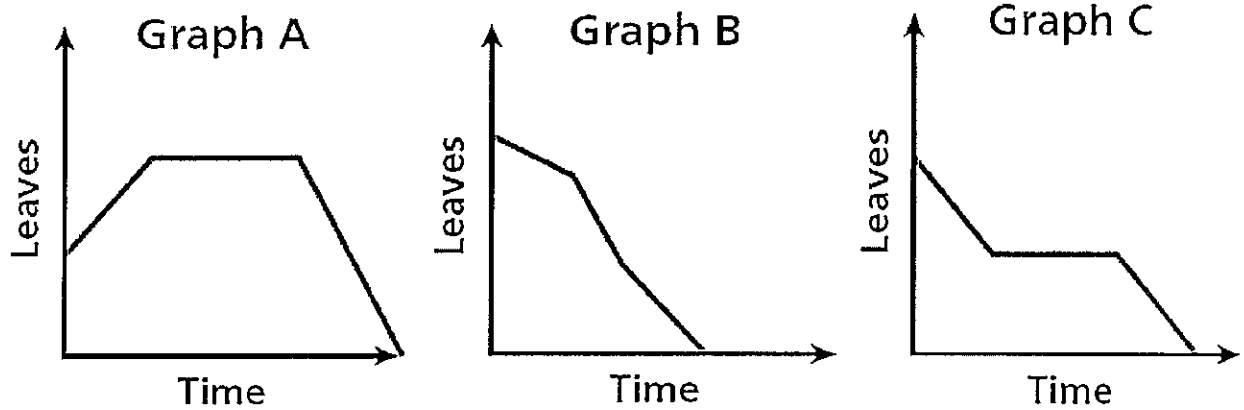
Functions



Lesson 4-1: Graphing Relationships

Vocabulary/Practice

1. Every day several leaves fall from a tree. One day a gust of wind blows off many leaves all at once. Eventually, there are no more leaves on the tree.



Constant: _____

Horizontal: _____

Slanting Upward: _____

Slanting Downward: _____

Using the vocabulary words above, describe Graph A, Graph B, and Graph C...

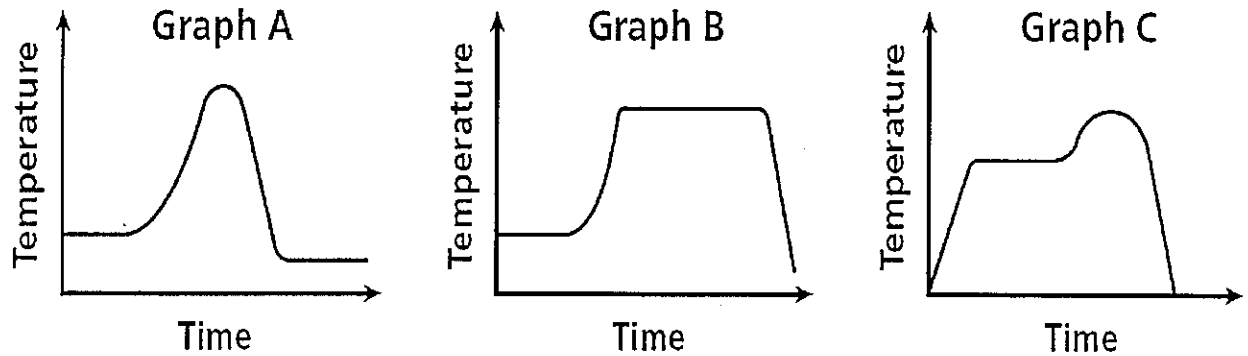
Graph A: _____

Graph B: _____

Graph C: _____

Which graph best represents the leaves situation described above? Explain...

2. The air temperature increased steadily for several hours and then remained constant. At the end of the day, the temperature increased slightly before dropping sharply.



Which graph above best represents this situation? Explain...

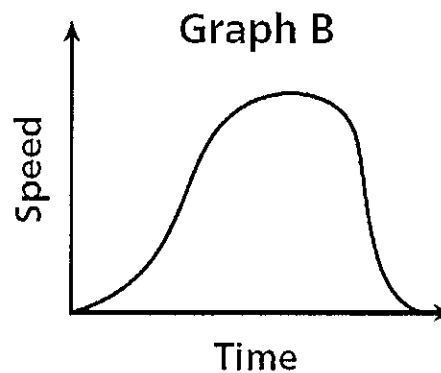
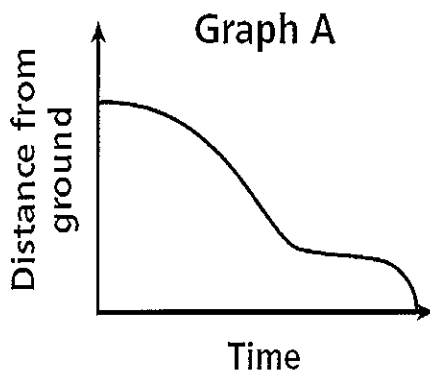
	CONTINUOUS Graph	DISCRETE Graph																
Words																		
Picture		<p>Keyboarding</p> <table border="1"> <caption>Keyboarding Data</caption> <thead> <tr> <th>Weeks</th> <th>Words per minute</th> </tr> </thead> <tbody> <tr><td>1</td><td>25</td></tr> <tr><td>2</td><td>30</td></tr> <tr><td>3</td><td>35</td></tr> <tr><td>4</td><td>40</td></tr> <tr><td>5</td><td>45</td></tr> <tr><td>6</td><td>50</td></tr> <tr><td>7</td><td>55</td></tr> </tbody> </table>	Weeks	Words per minute	1	25	2	30	3	35	4	40	5	45	6	50	7	55
Weeks	Words per minute																	
1	25																	
2	30																	
3	35																	
4	40																	
5	45																	
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7	55																	

3. A truck driver turns onto a street, drives at a constant speed, stops at a light and then continues. Sketch a graph that could represent this situation.

4. A bookstore sold between 5 and 8 books each day for 7 days. Sketch a graph that could represent this situation.

Often, there are more than two variables in a situation. Any two variables can be compared, meaning there may be multiple ways to represent a situation using graphs.

5. The graphs below both show a relationship about a child going down a slide. Interpret each graph.



Lesson 4-2: Relations & Functions

Vocabulary

Relation: _____

Different Representations:

- Words
- Ordered Pairs
- Table
- Graph
- Mapping Diagram
- Equation

Domain: _____

Range: _____

Function: _____

Practice

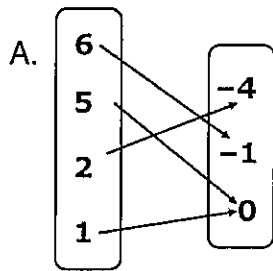
1. Express the relation $\{(2, 3), (4, 7), (6, 8)\}$ as a table, as a graph, and as a mapping diagram.

2. For the relation $\{(1, 5), (2, 3), (3, 2), (4, 1)\}$ identify the domain and range.

Domain:

Range:

3. Give the domain and range of each relation.



Domain:

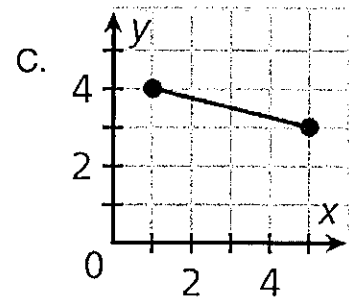
Range:

B.

x	y
1	1
4	4
8	1

Domain:

Range:

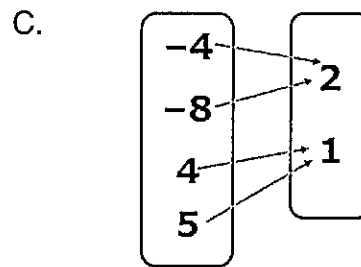
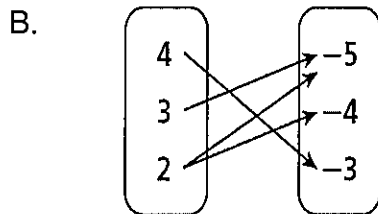


Domain:

Range:

4. Tell whether each of the following is a function.

A. Each person in the world is paired up with their biological mother.



D. $\{(-2, 5), (-1, 4), (1, 3), (2, 4)\}$

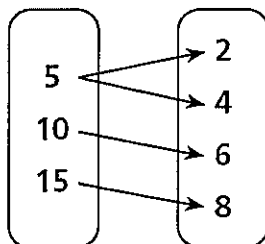
E. $\{(3, -2), (5, -1), (4, 0), (3, 1)\}$

F.

x	y
2	3
4	7
6	8

G. Each person in the world is paired up with their older sister.

5. For the relation below give the domain and range and tell whether it is a function.



Domain:

Range:

Lesson 4-3: Writing Functions

Vocabulary

Input: _____

Output: _____

$f(x)$: _____

When writing a function, look for a relationship between x and y ...

x	5	10	15	20
y	1	2	3	4

Practice

- A painter must measure a room before deciding how much paint to buy.*
Independent Variable: _____ Dependent Variable: _____
- The height of a candle decreases for every hour that it burns.*
Independent Variable: _____ Dependent Variable: _____
- A veterinarian weighs an animal before determining the amount of medication to prescribe.*
Independent Variable: _____ Dependent Variable: _____
- A fitness club charges a \$100 initiation fee, plus \$40 per month.

 - Identify the independent and dependent variables.
Independent: _____ Dependent: _____
 - Write a rule in function notation for the relationship between the total charge and the number of months.

c. Evaluate $f(3)$ and explain what this means.

6. Steven buys lettuce that costs \$1.69 per pound.

a. Identify the independent and dependent variables.

Independent:

Dependent:

b. Write a rule in function notation for the relationship between the number of pounds and the total cost.

c. Evaluate $f(1.5)$ and explain what this means.

7. Evaluate the function $f(x) = 3x + 2$ for the given input values.

a. $f(7)$

b. $f(-4)$

8. The settings on the knob of a space heater are whole numbers from 0 to 3. The total watts being used is 500 times the number shown on the knob.

a. Identify the independent and dependent variables.

Independent:

Dependent:

b. Write a rule in function notation for the relationship between the setting and the total watts used.

c. Identify an appropriate domain and range.

Domain:

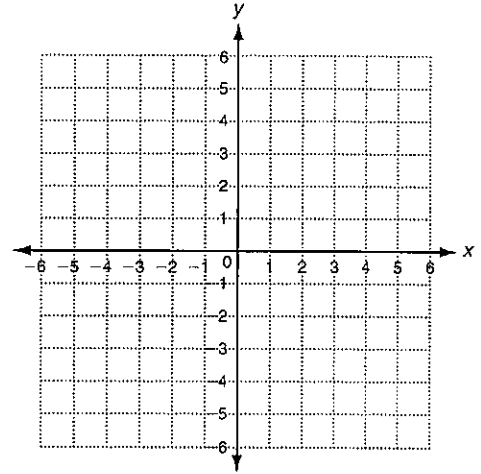
Range:

Lesson 4-4: Graphing Functions

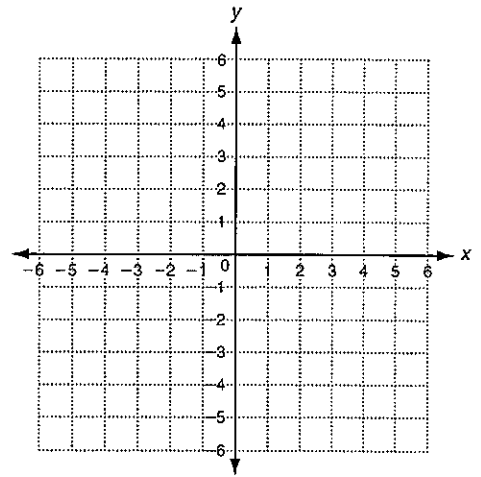
Practice

Graph each function for the given domain.

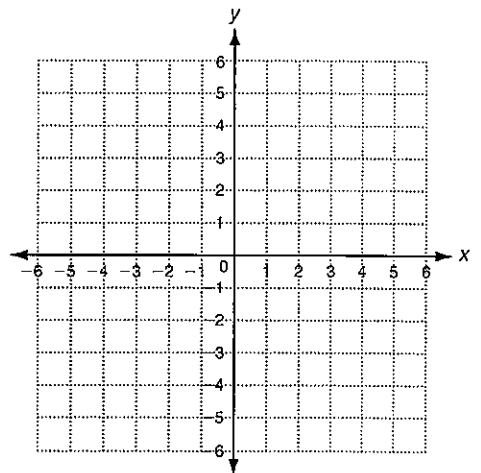
1. $-x + 2y = 6$; Domain: $\{-4, -2, 0, 2\}$



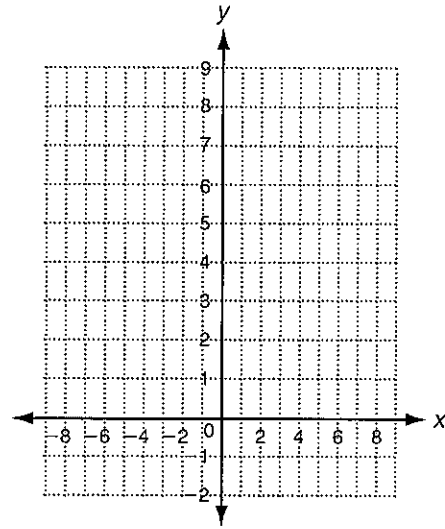
2. $f(x) = |x|$; Domain: $\{-2, -1, 0, 1, 2\}$



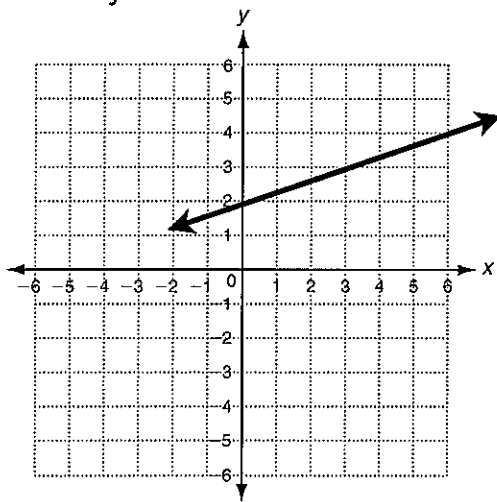
3. Graph the function $2x + 1 = y$.



4. $y = x^2$



5. Use a graph of the function $f(x) = \frac{1}{3}x + 2$ to find the value of $f(x)$ when $x = 6$. Check your answer.



6. The function $y = 2.5x$ describes how many millimeters sea level y rises in x years. Graph the function. Use the graph to estimate how many millimeters sea level will rise in 3.5 years.