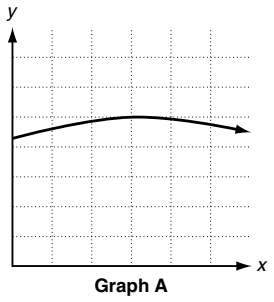
Name _____ Date _____ Class _____

LESSON 9-1

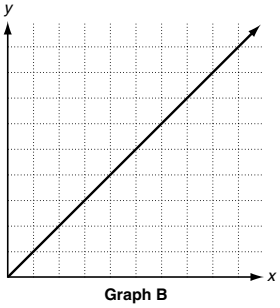
Practice A

Multiple Representations of Functions

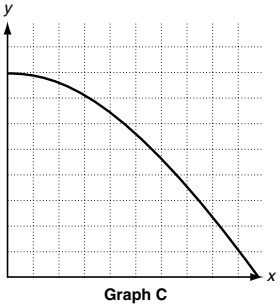
Match each situation to its corresponding graph.



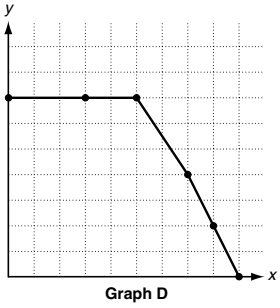
Graph A



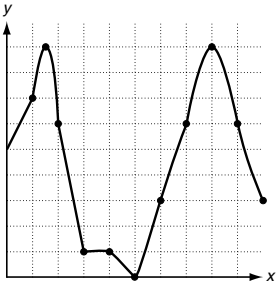
Graph B



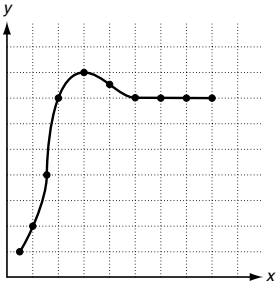
Graph C



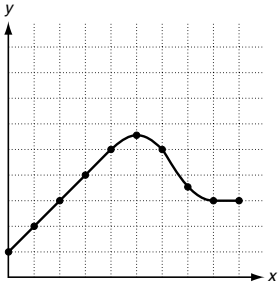
Graph D



Graph E



Graph F



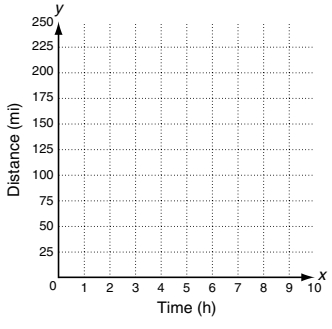
Graph G

1. A bowling ball rolls down the alley and drops into a trough behind the pins. Which graph shows a horizontal line that suddenly drops? _____
2. As a flower vase is filled with water, the level of the water rises. _____
3. A football is kicked and then caught by a person who runs down the football field with it. _____
4. The sales of wide-screen televisions increase rapidly, peak, and then level off. _____
5. Ice cream sales were steady all day at the music festival. _____
6. A restaurant opens late in the morning, experiences a lunchtime rush, and then empties right before the dinner rush. _____
7. The noise level of traffic decreases after the evening rush hour. _____

Solve.

8. A train begins a trip of 240 miles. The train averages 40 miles per hour including stops. Create a table, a graph, and an equation to represent the distance the train travels in relation to time.

Time (h)				
Distance (mi)				



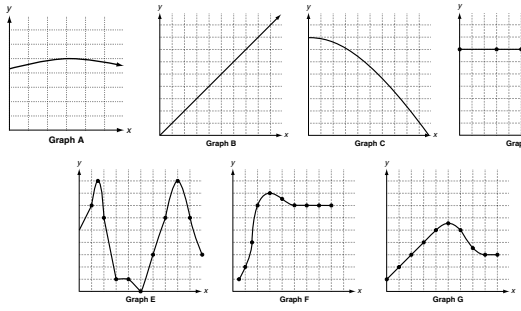
_____

LESSON 9-1

Practice A

Multiple Representations of Functions

Match each situation to its corresponding graph.

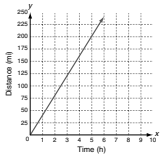


1. A bowling ball rolls down the alley and drops into a trough behind the pins. Which graph shows a horizontal line that suddenly drops? **D**
2. As a flower vase is filled with water, the level of the water rises. **B**
3. A football is kicked and then caught by a person who runs down the football field with it. **G**
4. The sales of wide-screen televisions increase rapidly, peak, and then level off. **F**
5. Ice cream sales were steady all day at the music festival. **A**
6. A restaurant opens late in the morning, experiences a lunchtime rush, and then empties right before the dinner rush. **E**
7. The noise level of traffic decreases after the evening rush hour. **C**

Solve.

8. A train begins a trip of 240 miles. The train averages 40 miles per hour including stops. Create a table, a graph, and an equation to represent the distance the train travels in relation to time.

Time (h)	0	1	2	3
Distance (mi)	0	40	80	120



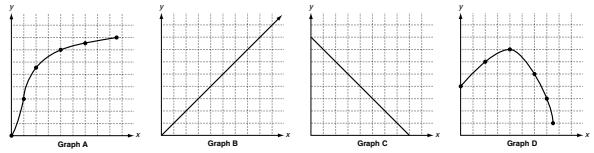
$d = 40t$

LESSON 9-1

Practice B

Multiple Representations of Functions

Match each situation to its corresponding graph. Sketch a possible graph of the situation if it does not match any of the given graphs.



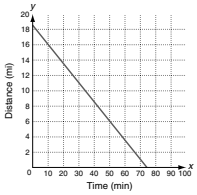
1. A train is approaching its destination. **C**
2. The temperature on an autumn day increases until late afternoon and then drops dramatically by late evening. **D**
3. A helium balloon is released by a running child on a calm day. **B**
4. A golf ball hit by a golfer flies over the trees and disappears into the woods. **A**

Solve.

5. A bicyclist leaves a rest stop at 1:00 and heads directly for home at a constant rate. The table shows how far, *d*, he is from home in miles as a function of time, *t*. Create a graph and an equation to predict the time he will arrive home.

t	1:00	1:10	1:20	1:30	1:40
d	18.5	16.0	13.5	11.0	8.5

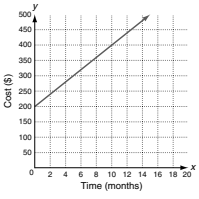
$d = -0.25t + 17.5$



6. New members at a fitness club pay $200 to start and then $20 per month for life. Create a table, a graph, and an equation that represent the total cost of enrollment, *c*, as a function of months, *m*, of participation.

m	1	2	3
c	220	240	260

$c = 20m + 200$

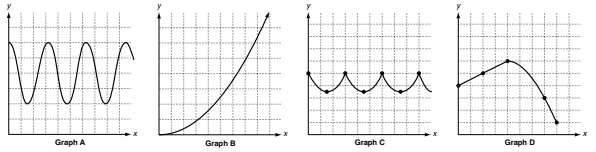


LESSON 9-1

Practice C

Multiple Representations of Functions

Match each situation to its corresponding graph. Sketch a possible graph of the situation if it does not match any of the given graphs.

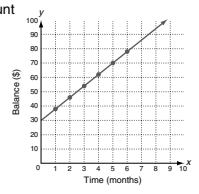


1. A pendulum swings back and forth. **C**
2. A new subdivision is built near an elementary school and families with children begin moving in. **B**
3. Joan throws a paper airplane into the air. **D**
4. Sandy is riding the roller coaster at the amusement park. **A**

Solve.

5. The table shows the balance, *b*, in dollars in a savings account at the end of each month. Create a graph and an equation to represent the balance after *m* months.

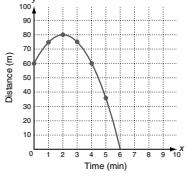
m	1	2	3	4	5	6
b	38	46	54	62	70	78



$b = 8m + 30$

6. A fireworks projectile is launched at 20 meters per second from a 60-meter bridge. The table shows the distance, *d*, in meters the projectile is above the river after *t* seconds. Create a graph and an equation to determine how long after the launch the projectile reaches the ground.

t	0	1	2	3	4	5
d	60	75	80	75	60	35



$d = -5t^2 + 20t + 60$

LESSON 9-1

Reteach

Multiple Representations of Functions

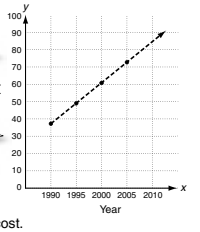
You can use a representation of a function to create a different representation of the same function.

The table shows the cost of renting mountain bikes for 5 days at Outdoor Biker from 1990 through 2005.
Use the table to create a graph and an equation.

Year	Cost ($)
1990	37
1995	49
2000	61
2005	73

Plot the ordered pairs on the graph

The graph suggests the data are **linear.**



Write a linear equation.

Step 1 Define the variables. Let x = year and y = the rental cost.

Step 2 Find the slope. Choose two points: (1990, 37) and (1995, 49).

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{49 - 37}{1995 - 1990} = \frac{12}{5} = 2.4$$

(x_1, y_1) (x_2, y_2)

Step 3 Write the equation of the line using the point-slope form.

$y - y_1 = m(x - x_1)$

$y - 37 = 2.4(x - 1990)$ Use $m = 2.4$ and (1990, 37) for (x_1, y_1).

$y = 2.4x - 4739$

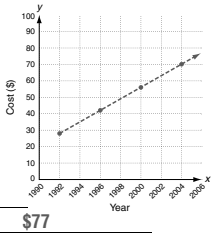
Use the equation to predict the cost of renting a mountain bike in 2007.

$y = 2.4x - 4739 = 2.4(2007) - 4739 = \$77.80$

The table shows the cost of renting ocean kayaks for a week at Ocean Adventures. Use the table to solve.

1. Use the data to create a graph.

Year	Cost ($)
1992	28
1996	42
2000	56
2004	70



2. Write a linear equation. $y = 3.5x - 6944$
3. Predict the cost of renting a kayak in 2006. $77