

Additional Practice

Investigation 4

Moving Straight Ahead

1. Find the slope and y-intercept of the line represented by each equation.

a. $y = 2x - 10$

b. $y = 4x + 3$

c. $y = 4x - 4.5$

d. $y = 2.6x$

e. $y = 7x + 1$

2. Each table in (i.)–(v.) below represents a linear relationship. Do parts (a)–(c) for each table.

a. Find the slope of the line that represents the relationship.

b. Find the y-intercept for the graph of the relationship.

c. Determine which of the following equations represents the relationship:

$y = 3 - 4x$ $y = x + 6$ $y = 4x - 3$ $y = 3x - 1.5$ $y = 2.5x$

i.

x	y
0	0
1	2.5
2	5
3	7.5
4	10

ii.

x	y
0	6
1	7
2	8
3	9
4	10

iii.

x	y
0	-1.5
1	1.5
2	4.5
3	7.5
4	10.5

iv.

x	y
0	3
1	-1
2	-5
3	-9
4	-13

v.

x	y
1	1
2	5
3	9
4	13
5	17

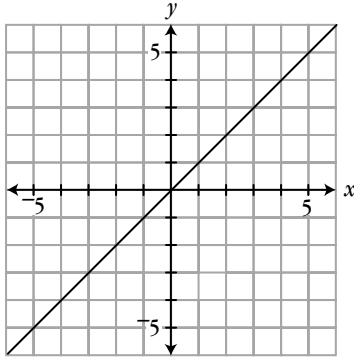
Additional Practice *(continued)*

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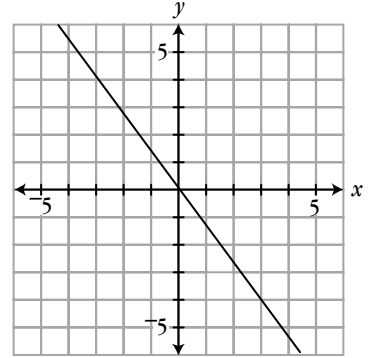
Moving Straight Ahead

3. For each of the lines below, find the slope, and write an equation that represents the line.

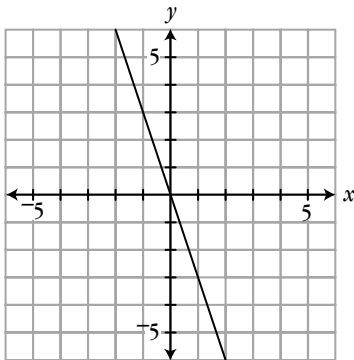
a.



b.



c.



4. Do parts (a)–(d) for each pair of points below.

- Plot the points on a coordinate grid, and draw the line through the points.
- Find the slope of the line through the points.
- Estimate the y -intercept from the graph.
- Using your answers from parts (a) and (b), write an equation for the line through the points.
 - $(0, 0)$ and $(-3, -3)$
 - $(1, -1)$ and $(-3, 3)$

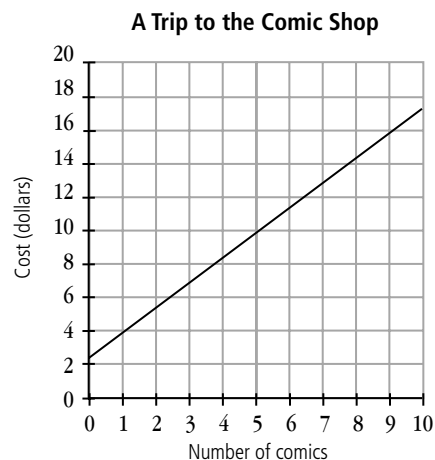
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5. On Saturdays, Jim likes to go to the mall to play video games or pinball. Round-trip bus fare to and from the mall is \$1.80. Jim spends \$0.50 for each video or pinball game.
- Write an equation for the amount of money M it costs Jim to go to the mall and play n video or pinball games.
 - What is the slope of the line your equation represents? What does the slope tell you about this situation?
 - What is the y -intercept of the line? What does the y -intercept tell you about the situation?
 - How much will it cost Jim to travel to the mall and play 8 video or pinball games?
 - If Jim has \$6.75, how many video or pinball games can he play at the mall?

6. At the right is a graph showing the total cost (including bus fare and the cost of comics) for Angie to go to the Comic Shop to buy new comic books.
- What is Angie's round-trip bus fare? Explain your reasoning.
 - How much does a comic book cost at the Comic Shop? Explain.



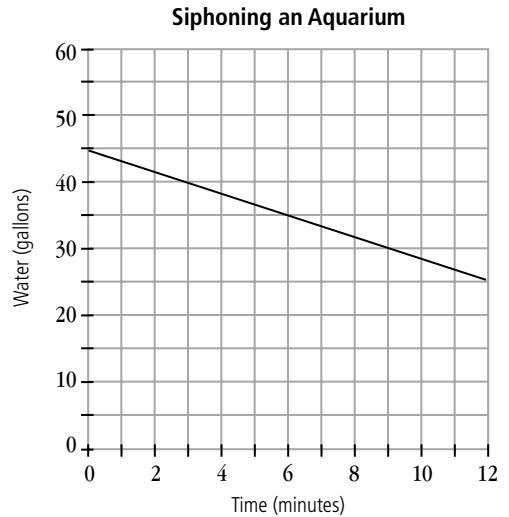
- Write an equation that shows how much money M it costs Angie to buy n comic books at the Comic Shop. What information did you use from the graph to write the equation?

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7. Tonya is siphoning all the water from a full aquarium to clean it. The graph at the right shows the amount of water left in the aquarium as Tonya siphons the water.



a. How much water was in the aquarium when it was full? Explain.

b. How much water does the siphon remove from the aquarium in 1 minute? Explain.

c. Write an equation that shows the amount of water G left in the aquarium after t minutes.

d. How many gallons of water are left in the aquarium after 10 minutes?

e. How long will it take the siphon to remove all of the water from the aquarium? Explain.

8. For parts (a)–(f), write an equation for the line that satisfies the given conditions.

a. The slope is 7 and the y-intercept is -2 .

b. The slope is 0 and the y-intercept is 9.18.

c. The line passes through the points $(3, 1)$ and $(6, 4)$.

d. The line passes through the points $(-24, -11)$ and $(-8, -3)$.

e. The line passes through the points $(-4.5, 2)$ and $(6.3, 5.8)$.

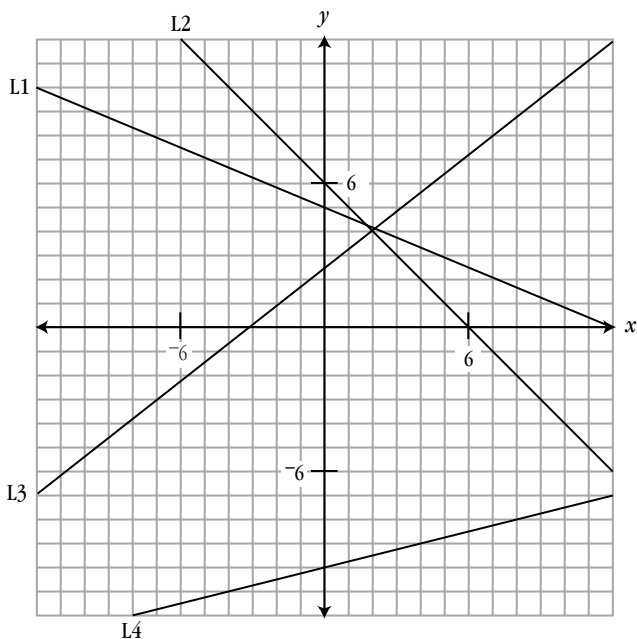
f. The slope is $-\frac{2}{3}$ and the line passes through the point $(5, 0)$.

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9. Write an equation for each of the four lines shown on the graph below.



10. At Midtown Bowling Center, the cost to bowl four games is \$8.40, and the cost to rent shoes is \$1.15.
- Write an equation for the cost C for renting shoes and bowling n games.
 - What is the y -intercept for your equation, and what does it represent?
 - What is the slope of your equation, and what does the slope represent?
 - What is the cost of renting shoes and bowling six games?
 - Tony paid \$7.45 for his games and shoe rental. How many games did Tony bowl?

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11. Here are some possible descriptions of a line:

- A. positive slope
- B. slope equals 0
- C. negative slope
- D. positive y -intercept
- E. y -intercept equals 0
- F. negative y -intercept
- G. passes through the origin: $(0, 0)$
- H. crosses the x -axis to the right of the origin
- K. crosses the x -axis to the left of the origin
- L. never crosses the x -axis

For each equation below, list ALL of the properties that describe the graph of that equation.

a. $y = x$

b. $y = 2x + 1$

c. $y = -5$

d. $y = 4 - 3x$

e. $y = -3 - x$

12. a. These two points determine a line: $(0, 3)$ and $(2, 5)$. Which of these points is also on that line?

$(4, 7)$

$(4, 8)$

$(4, 10)$

b. These two points determine a line: $(-2, 10)$ and $(1, 4)$. Which of these points is also on that line?

$(2, 0)$

$(2, 2)$

$(2, 10)$

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13. Below are four patterns:


Pattern 1: 

Figure 1



Figure 2



Figure 3


Pattern 2: 

Figure 1



Figure 2



Figure 3


Pattern 3: 

Figure 1



Figure 2



Figure 3

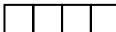
Pattern 4: 

Figure 1

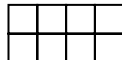


Figure 2

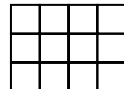


Figure 3

a. In each cell in the chart below, write the PERIMETER of the figure:

Shape	Figure 1	Figure 2	Figure 3	Figure 4	Figure 10	Figure 100
Pattern 1						
Pattern 2						
Pattern 3						
Pattern 4						

b. Describe the pattern of change within each pattern.

c. Explain how you found the values for the last three columns.

d. Write an equation for the PERIMETER of figures for each pattern.

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14. Line A is the graph of this equation: $y = 2x + 2$.
Line B is the graph of this equation: $y = 2x$.
- What is alike about lines A and B? What is different?
 - Write the equation of a line that lies between line A and line B. How is your equation similar to the equations above? How is it different?
 - Explain why your equation is correct.