

4.1

Writing Equations in Slope-Intercept Form

For use with Exploration 4.1

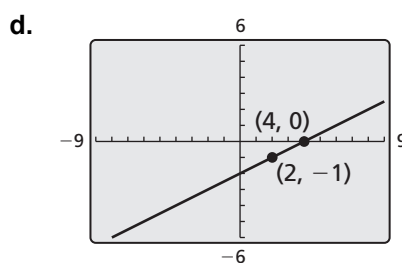
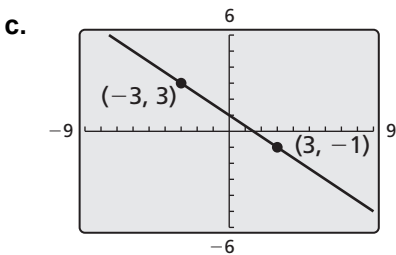
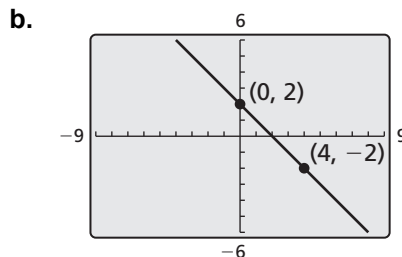
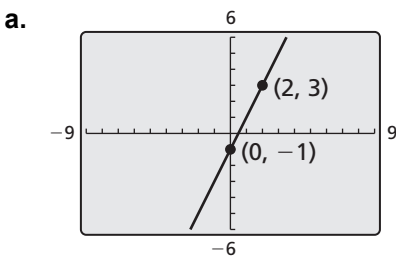
Essential Question Given the graph of a linear function, how can you write an equation of the line?

1 EXPLORATION: Writing Equations in Slope-Intercept Form

Go to *BigIdeasMath.com* for an interactive tool to investigate this exploration.

Work with a partner.

- Find the slope and y-intercept of each line.
- Write an equation of each line in slope-intercept form.
- Use a graphing calculator to verify your equation.

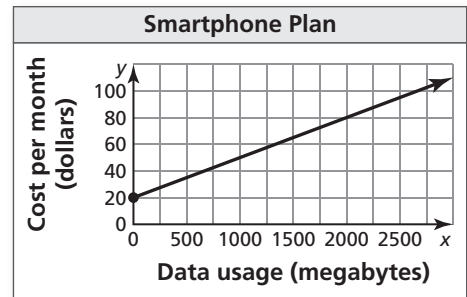


4.1 Writing Equations in Slope-Intercept Form (continued)

2 EXPLORATION: Mathematical Modeling

Work with a partner. The graph shows the cost of a smartphone plan.

- a. What is the y -intercept of the line?
Interpret the y -intercept in the context of the problem.



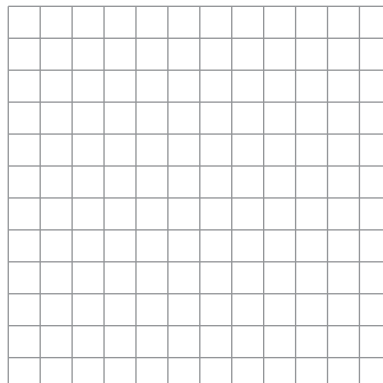
- b. Approximate the slope of the line.
Interpret the slope in the context of the problem.

- c. Write an equation that represents the cost as a function of data usage.

Communicate Your Answer

- 3. Given the graph of a linear function, how can you write an equation of the line?

- 4. Give an example of a graph of a linear function that is different from those above. Then use the graph to write an equation of the line.



4.1

Notetaking with Vocabulary

For use after Lesson 4.1

In your own words, write the meaning of each vocabulary term.

linear model

Notes:

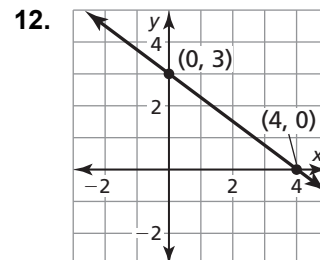
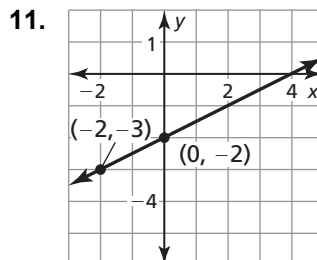
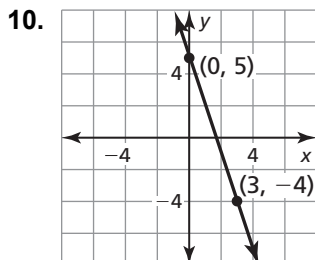
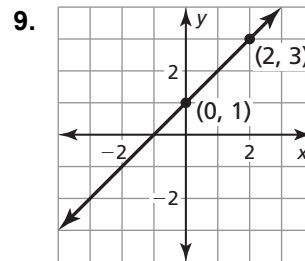
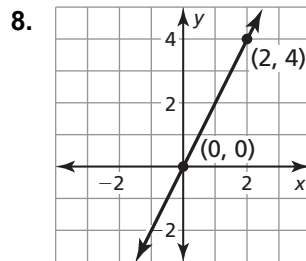
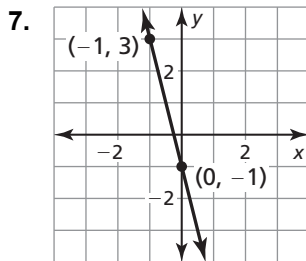
4.1 Notetaking with Vocabulary (continued)

Extra Practice

In Exercises 1–6, write an equation of the line with the given characteristics.

- | | | |
|----------------------------------|---|---|
| 1. slope: 0
y-intercept: 9 | 2. slope: -1
passes through: $(3, -3)$ | 3. slope: 2
y-intercept: -3 |
| 4. slope: -3
y-intercept: 7 | 5. slope: 4
passes through: $(2, 6)$ | 6. slope: $\frac{1}{3}$
y-intercept: 2 |

In Exercises 7–12, write an equation of the line in slope-intercept form.



4.1 Notetaking with Vocabulary (continued)

In Exercises 13–18, write an equation of the line that passes through the given points.

13. $(3, -1), (8, 4)$

14. $(2, 1), (3, 5)$

15. $(0, 2), (4, 3)$

16. $(-3, -2), (-4, -1)$

17. $(8, 0), (0, 8)$

18. $(-1, 7), (2, -5)$

In Exercises 19–24, write a linear function f with the given values.

19. $f(6) = -2, f(4) = -3$

20. $f(-5) = 5, f(5) = 15$

21. $f(8) = -3, f(9) = -4$

22. $f(2) = 6, f(7) = -4$

23. $f(-2) = -2, f(4) = 10$

24. $f(4) = 0, f(2) = 8$

25. An electrician charges \$120 after 2 hours of work and \$190 after 4 hours of work.

a. Write a linear model that represents the total cost as a function of the number of hours worked.

b. What is the electrician's initial fee?

c. How much does the electrician charge per hour?