

2.1 Section 2.1 Practice

Determine which points in the table are solution points. Plot the solution points and draw a line *exactly* through the two points.

1.

x	-1	0	1	2
$y = -x + 3$	4	2	4	1

2.

x	-3	0	3	6
$y = \frac{1}{3}x + 5$	6	5	4	7

Graph the linear equation. Use a graphing calculator to check your graph, if possible.

3. $y = 3.5$

4. $y = \frac{4}{5}x$

5. $y = \frac{2}{3}x - 2$

6. $y = -\frac{1}{10}x + 4$

7. $y = \frac{10}{3}x$

8. $y = -\frac{x}{2} + \frac{3}{2}$

9. The equation $y = 1.5x + 35$ represents the cost y (in dollars) of the family meal when the food costs \$35 and x beverages are purchased.

- Graph the equation.
- Use the graph to estimate the cost of the family meal when 5 beverages are purchased.
- Use the equation to find the exact cost of the family meal when 5 beverages are purchased.

Solve for y . Then graph the equation. Use a graphing calculator to check your graph.

10. $2y + 3x = -6$

11. $x + 0.25y = 1.5$

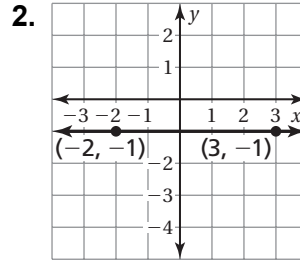
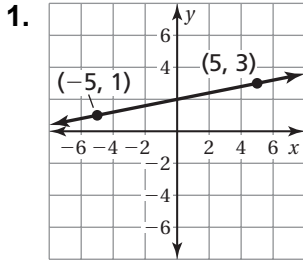
12. There are 10 coconuts at the base of your tree. The coconuts are falling off the tree at a rate of 6 coconuts per week. Assume that you do not pick up any coconuts.

- Write and graph a linear equation that represents the number of coconuts at the base of your tree after x weeks.
- The tree will have no coconuts on it when there are 52 coconuts at the base of the tree. After how many weeks will this occur?

13. The sum s of the first n integers is $s = \frac{1}{2}n(n + 1)$. Plot four points (n, s) that satisfy the equation. Is the graph of the equation a line?

2.2 Section 2.2 Practice

Find the slope of the line.



Find the slope of the line through the given points.

3. $(1, -6), (-1, 6)$

4. $(-3, -6), (6, 6)$

The points in the table lie on a line. How can you find the slope of the line from the table? What is the slope?

5.

x	0	2	4	6
y	-4	-1	2	5

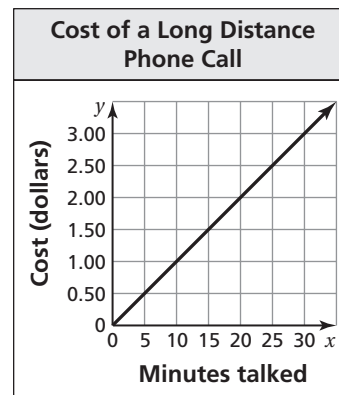
6.

x	-4	-1	0	3
y	7	4	3	0

7. A ramp used to remove furniture from a moving truck has a slope of $\frac{2}{5}$.

The height of the ramp is 4 feet. How far does the base of the ramp extend from the end of the truck?

8. The graph shows the cost of a long distance phone call.
- Find the slope of the line.
 - Explain the meaning of the slope as a rate of change.
 - How much money is added to the phone bill if you talk for 5 extra minutes?
 - How many minutes did you talk if the phone call costs \$3?



2.3 Section 2.3 Practice

Find the slope and y-intercept of the graph of the linear equation.

1. $y = -\frac{3}{8}x + 10$

2. $y = 4.5x + 7$

3. $y = -\frac{4}{5}x - \frac{1}{5}$

4. $y + 2.5 = 5.5x$

5. $y - \frac{2}{7} = 4x$

6. $y + 5 = \frac{2}{3}x$

Graph the linear equation. Identify the x-intercept. Use a graphing calculator to check your answer.

7. $y = \frac{5}{3}x - 2$

8. $y = -1.2x + 9$

9. $y - 6.6 = 1.1x$

10. $y + 3 = -\frac{6}{7}x$

11. There is a \$10 monthly membership fee to download music. There is a \$0.50 fee for each song downloaded.
- Write a linear equation that models the cost of downloading x songs per month.
 - Graph the equation.
 - What is the cost of downloading 15 songs?
12. An entrepreneur is opening a business to market pies and pie fillings based on her family's recipes. The price of every item in the store is \$6.
- Write a linear equation that models the amount of revenue y (in dollars) taken in for selling x items.
 - Graph the equation.
 - The monthly cost of rent and utilities for the store space is \$1100. What is the minimum number of items that must be sold each month in order to make a profit?
 - Assuming 4 weeks in a month, what is the average number of items that need to be sold each week in order to turn a profit?

2.4 Section 2.4 Practice

Write the linear equation in slope-intercept form.

1. $\frac{2}{3}x + y = 4$

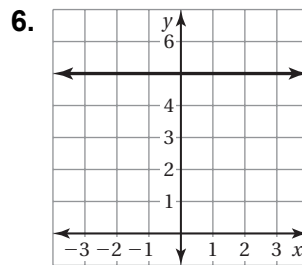
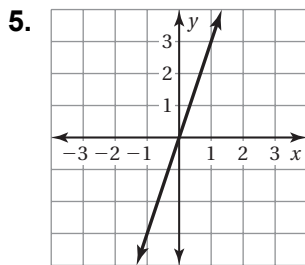
2. $4x - 2y = 10$

Graph the linear equation. Use a graphing calculator to check your graph.

3. $4.5x - 0.5y = 3$

4. $\frac{2}{3}x + \frac{1}{3}y = 2$

Use the graph to find the x - and y -intercepts.



Graph the linear equation using intercepts. Use a graphing calculator to check your graph.

7. $\frac{1}{5}x + \frac{1}{10}y = \frac{2}{5}$

8. $2.5x - 1.25y = 5$

9. Your family is on a ski vacation. Lift tickets for the family cost \$80 per day. Snowboard rentals cost \$40 per day. You purchase lift tickets for x days and snowboard rentals for y days and spend \$480.

a. Write an equation in standard form that represents the situation.

b. Find the x - and y -intercepts.

c. Graph the equation.

d. You rent snowboards for 2 days. How many days did you purchase lift tickets?

10. An electrician charges \$80 plus \$32 per hour.

a. Write an equation that represents the total fee y (in dollars) charged by the electrician for a job lasting x hours.

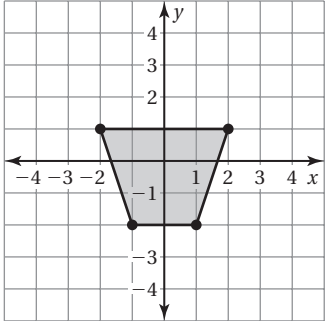
b. Find the x - and y -intercepts.

c. Graph the equation.

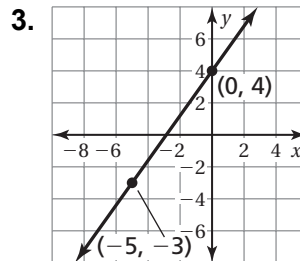
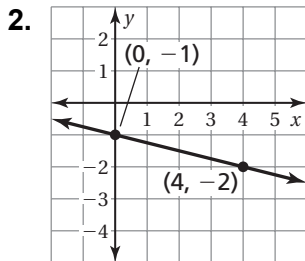
d. Is the value of the x -intercept applicable to the electrician? Explain.

2.5 Section 2.5 Practice

1. Write an equation for each side of the figure.



Write an equation of the line in slope-intercept form.



4. Your hair is 6 inches long and grows at a rate of 144 millimeters per year.
- Convert 144 millimeters per year to inches per year. Round your answer to the nearest tenth.
 - Write an equation that represents the length y (in inches) of your hair after x years.
 - How long is your hair after 4 years?

Write an equation of the line that passes through the points.

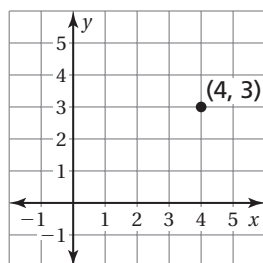
5. $(-4, -1), (0, 5)$ 6. $(0, -3), (1, -5)$

7. Yesterday, you typed 8 pages in 48 minutes. Today, you typed 20 pages in 2 hours.
- Plot the two points (x, y) , where x is the time (in minutes) and y is the number of pages.
 - What is the rate of typing?
 - Write an equation that represents the number of pages in terms of the number of minutes.

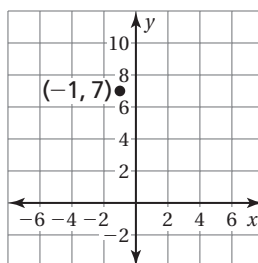
2.6 Section 2.6 Practice

Write an equation of the line with the given slope that passes through the given point.

1. $m = \frac{5}{4}$



2. $m = -4$



Write in point-slope form an equation of the line that passes through the given point and has the given slope.

3. $(-6, 3); m = \frac{1}{3}$

4. $(8, -7); m = -\frac{3}{4}$

5. $(-1, -5); m = 2$

6. $(-2, 8); m = -3$

Write in slope-intercept form an equation of the line that passes through the given points.

7. $(2, 3), (3, 7)$

8. $(-5, -8), (10, 4)$

9. $(-6, 4), (6, 0)$

10. $(2, 4), (4, 9)$

11. You are pulling a kite back to the ground at a rate of 2 feet per second. After 4 seconds, the kite is 16 feet above the ground.

- Write an equation that represents the height y (in feet) above the ground after x seconds.
- At what height was the kite when you started pulling it in?
- When does the kite touch the ground?

2.7 Section 2.7 Practice

Describe a real-life problem that has the given rate and intercepts. Draw a line that represents the problem.

1. Rate: \$15 per week
y-intercept: \$30
x-intercept: -2 weeks
2. Rate: -1.5 gallons per week
y-intercept: 15 gallons
x-intercept: 10 days
3. Your choir is presenting a musical at the city theater to raise money for a trip to New York. The Parents Association is donating \$400. In addition, the choir will receive 75% of each \$20 ticket sold. The maximum capacity of the theater is 500 people.
 - a. Write an equation that represents the choir's revenue R when x tickets are sold.
 - b. What is the maximum amount of money that the choir can raise?
 - c. The choir director has calculated that if they can fill the theater to 60% capacity, then they will raise enough money for the trip. How much money is required for the trip?
4. Water is slowly leaking from a large bottle. The percent y (in decimal form) of water remaining in the bottle after x hours is $y = -0.02x + 1$.
 - a. Graph the equation.
 - b. Interpret the x - and y -intercepts.
 - c. Interpret the slope.
 - d. When will the bottle be one-quarter full?
5. You are riding your bicycle from school to home. The graph relates your distance from home y (in city blocks) and travel time x (in minutes).
 - a. How far away from home are you when you leave school?
 - b. How long will it take you to get home?
 - c. Write an equation of the line.

