

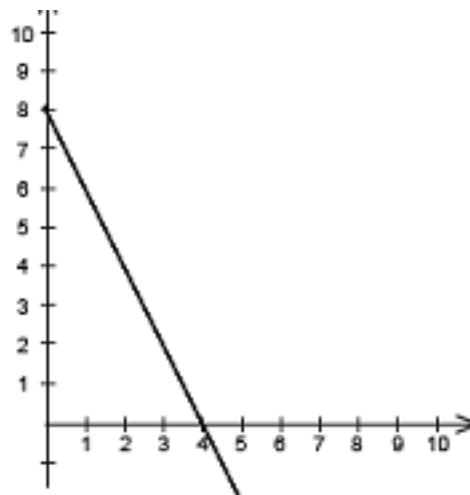
ASSIGNMENT

DYLAN ZWICK'S MATH

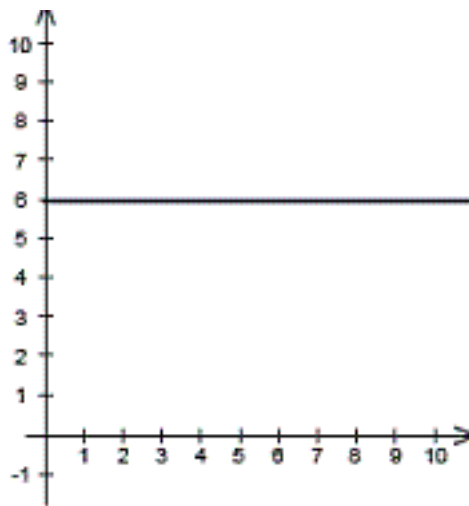
Section 3.3

In Exercise 1-6, estimate the slope of the line from its graph.

3.3.1: estimate the slope of



3.3.6: estimate the slope of



In Exercises 9 and 11, find the slope of the line passing through each pair of points.

3.3.9: $(0, 0), (4, 8)$

3.3.11: $(2, 4), (7, 4)$

In Exercises 13, 16, 19, plot the points and find the slope(if possible) of the line passing through them. State whether the line rises, falls, is horizontal, or is vertical.

3.3.13: $(-4, 3), (-2, 5)$

3.3.16: $(9, 2), (-9, 2)$

3.3.19: $(\frac{3}{4}, 2), (5, -\frac{5}{2})$

In Exercise 25, sketch the graph of the line. Then find the slope of the line.

3.3.25: $y = 2x - 1$

In Exercise 31, solve for x so that the line through the points has the given slope.

3.3.31: $(4, 5)$ $(x, 7)$

In Exercise 35, a point on a line and the slope of the line are given. Find two additional points on the line.

3.3.35: $(5, 2), \quad m = 0$

In Exercises 43, 47, 49, write the equation of the line in slope-intercept form.

3.3.43: $6x - 3y = 9$

3.3.47: $2x + 5y - 3 = 0$

3.3.49: $x = 2y - 4$

In Exercises 51-56, find the slope and y-intercept of the line. **See Example 6**

3.3.51: $y = 3x - 2$

3.3.53: $4x - 6y = 24$

In Exercise 57, write the equation of the line in slope-intercept form, and then use the slope and y-intercept to sketch the line.

3.3.57: $x + y = 0$

3.3.75: determine whether the two lines are parallel, perpendicular, or neither. **See Examples 9 and 10**

$$y = \frac{1}{2}x - 2$$

$$y = \frac{1}{2} + 3$$

3.3.84: Ramp A loading dock ramp rises 4 feet above the ground. The ramp has a slope of $\frac{1}{10}$. What is the horizontal length of the ramp?

Section 3.4

In Exercises 5, 7, 10, write an equation of the line that passes through the point and has the specified slope. **See Example 1**

3.4.5: $(2, -3), m = 3$

3.4.7: $(-3, 1), m = -\frac{1}{2}$

3.4.10: $(-2, \frac{3}{2}), m = -\frac{1}{6}$

In Exercises 11, 14, 17, state the slope and a point on the graph for each equation in point-slope form.

3.4.11: $y - 1 = 2(x - 3)$

3.4.14: $y - 6 = 4(x + 1)$

3.4.17: $y = -8x$

In Exercises 19-34, use the point-slope form of the equation of a line to write an equation of the line that passes through the point and has the specified slope. When possible, write the equation in slope-intercept form. **See Example 2**

3.4.19: $(0, 0), m = -\frac{1}{2}$

3.4.22: $(0, 5), m = -3$

3.4.27: $(-4, -7), m = \frac{5}{4}$

3.4.33: $(2, -1), m = 0$

In Exercise 35, write an equation of the line that passes through the pint and has the specified y-intercept.

3.4.35: $(5, 2), b = 3$

In Exercises 39-54, write the general form of the equation of the line that passes through the two points. **See Example 3**

3.4.39: $(0, 0), (3, -4)$

3.4.43: $(1, 4), (5, 6)$

3.4.45: $(-5, 2), (5, -2)$

3.4.51: $(5, 9), (8, -1.4)$

3.4.53: $(2, 0.6), (8, -4.2)$

3.4.59: Write an equation of the vertical line through $(-1, 5)$

In Exercises 65, write equation of the lines that pass throught the pint and are (a) parallel and (b) perpendicular to the given line. **See Example 5**

3.4.65: $(2, 1), 6x - 2y = 3$

3.4.87: straight-Line Depreciation A small business purchases a photocopier for \$7400. After 4 years, its depreciated value will be \$1500.

(a) Assuming straight-line depreciation, write an equation of the line giving the value V of the copier in terms of time t in years.

(b) Use the equation in part (a) to find the value of the copier after 2 years

Section 3.5

In Exercises 1, 5, determine whether each point is a solution of the inequality. **See Example 1**

| | Inequality | Points |
|---------------|--------------|---|
| 3.5.1: | $x - 2y < 4$ | (a) (0,0) (b) (2, -1) (c) (3,4) (d) (5, 1) |

| | Inequality | Points |
|---------------|----------------|--|
| 3.5.5: | $y > 0.2x - 1$ | (a) (0,2) (b) (6, 0) (c) (4,-1) (d) (-2, 7) |

In Exercises 17, 27, 34, sketch the graph of the solution of the linear inequality. **See Examples 2-5**

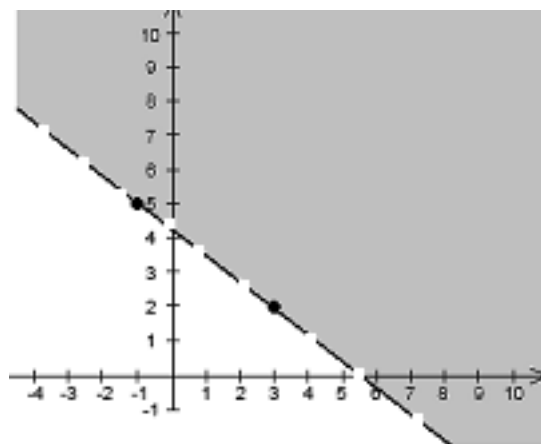
3.5.17: $x \geq 6$

3.5.27: $x + y \geq 4$

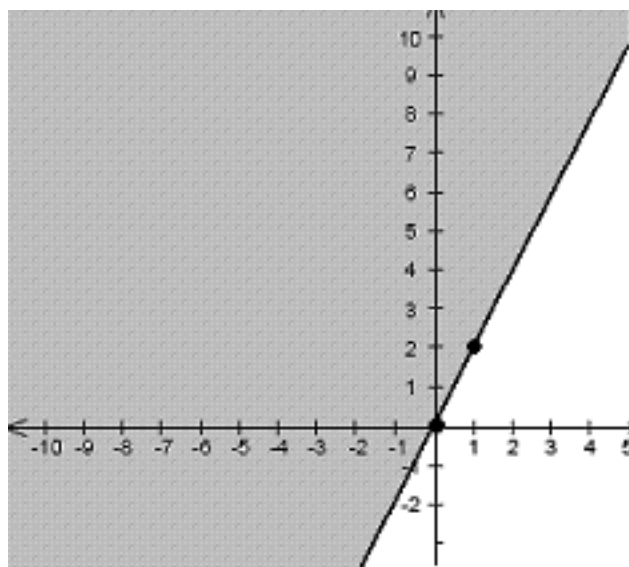
3.5.34: $4x - 7y > 21$

In Exercises 53, 57, write an inequality for the shaded region shown in the figure.

3.5.53: Write an inequality of



3.5.57: Write an inequality of



3.5.63: Consumerism You and some friends go out for pizza. Together you have \$32. You want to order two large pizzas with cheese at \$10 each. Each additional topping costs \$0.60 and each small soft drink costs \$1.00.

(a) Write an inequality that represents the numbers of toppings x and drinks y that your group can afford. (Assume there is no sales tax.)

(b) Sketch a graph of the solution of the inequality.

(c) What are the coordinates for an order of six soft drinks and two large pizzas with cheese, each with three additional toppings? Is this a solution of the inequality?

Section 3.6

In Exercises 1, 4, find the domain and the range of the relation. Then draw a graphical representation of the relation. **See Example 1.**

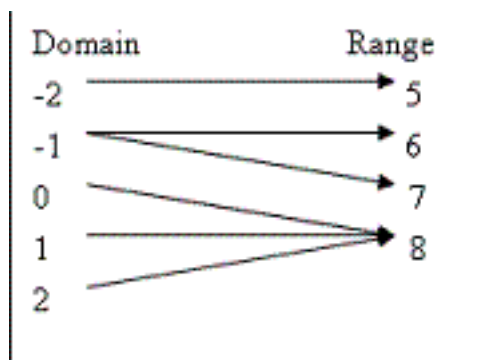
3.6.1: $\{(-2, 0), (0, 1), (1, 4), (0, -1)\}$

3.6.4: $\{(-3, 6), (-3, 2), (-3, 5)\}$

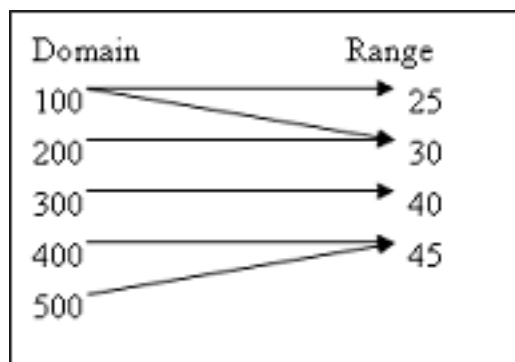
In Exercise 5, write a set of ordered pairs that represents the rule of correspondence. **See Example 2**

3.6.5: The cubes of all positive integers less than 8.

3.6.11: determine whether the relation is a function



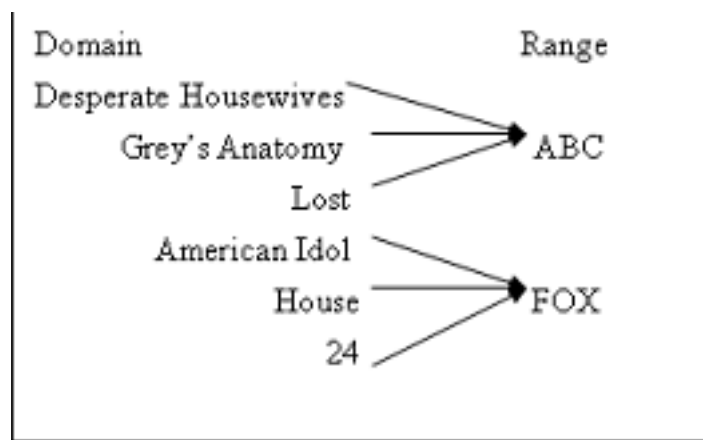
3.6.14: determine whether the relation is a function



3.6.17: determine whether the relation is a function



3.6.18: determine whether the relation is a function



| | Input value, x | Output value, y |
|----------------|------------------|-------------------|
| | 0 | 0 |
| 3.6.19: | 1 | 1 |
| | 2 | 4 |
| | 3 | 9 |
| | 4 | 16 |

| | Input value, x | Output value, y |
|----------------|------------------|-------------------|
| | 4 | 2 |
| 3.6.21: | 7 | 4 |
| | 9 | 6 |
| | 7 | 8 |
| | 4 | 10 |

In Exercise 25, determine whether the description represents a function. **See Example 3.**

3.6.25: The input value x is any of 16 homes on a street and the output value y is the number of vehicles in the driveway of the home.

In Exercise 33, explain why the equation represents y as a function of x .

3.6.33: $y = 10x + 12$

3.6.39: Determine whether $y^2 = x$ represents y as a function of x .

3.6.40: Determine whether $y = x^2$ represents y as a function of x .

3.6.43: Fill in each blank and simplify ($f(x) = 3x + 5$)

- (a) $f(2) = 3(\quad) + 5$
- (b) $f(-2) = 3(\quad) + 5$
- (c) $f(k) = 3(\quad) + 5$
- (d) $f(k + 1) = 3(\quad) + 5$

In Exercises 49-59, evaluate the function as indicated, and simplify.
See **Examples 5 and 6**

3.6.49: $f(x) = 12x - 7$

- | | |
|-------------------|----------------------|
| (a) $f(3)$ | (b) $f(\frac{3}{2})$ |
| (c) $f(a) + f(1)$ | (d) $f(a + 1)$ |

3.6.53: $f(x) = \sqrt{x + 5}$

- | | |
|----------------|-------------|
| (a) $f(-1)$ | (b) $f(4)$ |
| (c) $f(z - 5)$ | (d) $f(5z)$ |

3.6.59: $f(x) = \begin{cases} x + 8 & \text{if } x < 0, \\ 10 - 2x & \text{if } x \geq 0 \end{cases}$

$$\begin{array}{ll} (a)f(4) & (b)f(-10) \\ (c)f(0) & (d)f(6) - f(-2) \end{array}$$

3.6.67: Find the domain of $f(t) = \frac{t+3}{t(t+2)}$

3.6.97: Profit The marketing department of a business has determined that the profit from selling x units of a product is approximated by the model $P(x) = 50\sqrt{x} - 0.5x - 500$. Find (a) $P(1600)$ and (b) $P(2500)$