

2-1 Practice

Form G

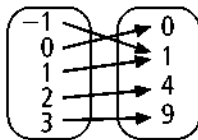
The table shows the number of gold medals won by United States athletes during the Summer Olympics.

U.S. Gold Medals in Summer Olympics						
Year	1988	1992	1996	2000	2004	2008
Gold Medals	36	37	44	40	35	36

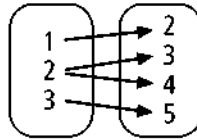
- Represent the data using each of the following:
 - a mapping diagram
 - ordered pairs
 - a graph on the coordinate plane
- What is the domain and range of this data set?

Determine whether each relation is a function.

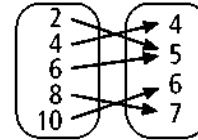
3. Domain Range



4. Domain Range

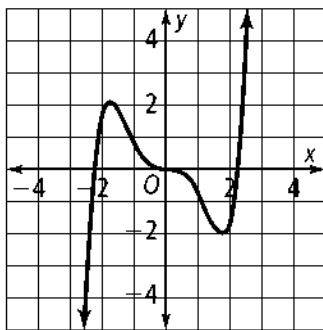


5. Domain Range

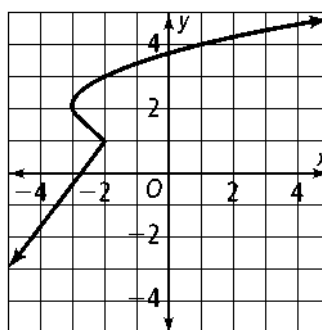


Use the vertical line test to determine whether each graph represents a function.

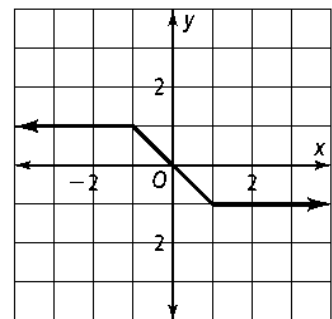
6.



7.



8.



2-1

Practice (continued)

Form G

Evaluate each function for the given value of x , and write the input x and the output $f(x)$ as an ordered pair.

9. $f(x) = -3x + 2$ for $x = 3$

10. $f(x) = \frac{1}{2}x - 1$ for $x = -2$

11. $f(x) = 5x - 22$ for $x = 12$

12. $f(x) = -5x - 3$ for $x = -7$

13. $f(x) = \frac{9}{4}x - 15$ for $x = 4$

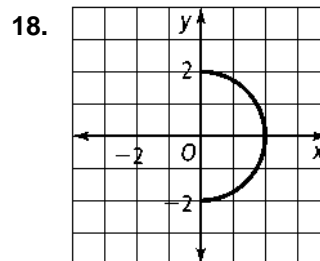
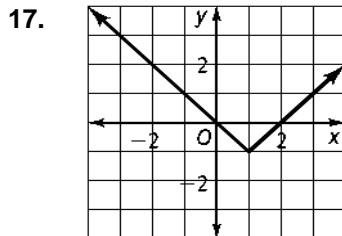
14. $f(x) = \frac{5}{3}x - \frac{3}{5}$ for $x = 3$

Write a function rule to model the cost of renting a truck for one day. Then evaluate the function for the given number of miles.

15. Daily rental: \$19.95
 Rate per mile: \$.50 per mile
 Miles traveled: 73 miles

16. Daily rental: \$39.95
 Rate per mile: \$.60 per mile
 Miles traveled: 48 miles

Find the domain and range of each relation, and determine whether it is a function.



19. The surface area of a sphere is a function of the radius of the sphere: $A = 4\pi r^2$. Evaluate the function for a basketball with a radius of 11.5 cm.

20. The relation between the length of the femur f , the bone from the knee to the hip joint, and the height of an adult woman h is modeled by the function $h(f) = 2.3f + 24$. In the following ordered pairs, the first coordinate is the femur length and the second coordinate is the corresponding height, in inches. Find the unknown measure in each ordered pair.

a. $(13, t)$

b. $(14.5, p)$

c. $(m, 56.2)$

d. $(n, 72.3)$

2-2 Practice

Form G

For each function, determine whether y varies directly with x . If so, find the constant of variation and write the function rule.

1.

x	y
-6	-2
9	3
21	7

2.

x	y
2	8
3	12
5	20

3.

x	y
7	56
11	22
16	32

Determine whether y varies directly with x . If so, find the constant of variation.

4. $y = \frac{4}{9}x$

5. $y = -1.2x$

6. $y + 4x = 0$

7. $y - 3x = 1$

8. $y = 3x$

9. $y + 2 = x$

For Exercises 10–13, y varies directly with x .

10. If $y = 3$ when $x = -9$, find x when $y = 5$.

11. If $y = -14$ when $x = -7$, find x when $y = 22$.

12. If $y = 5$ when $x = 8$, find x when $y = 2$.

13. If $y = 4$ when $x = 14$, find y when $x = -5$.

14. The distance a spring stretches varies directly with the amount of weight that is hanging on it. A weight of 2.5 pounds stretches a spring 18 inches. What is the stretch of the spring when a weight of 6.4 pounds is hanging on it?

15. The amount of lemon juice in a lemonade recipe varies directly with the amount of water. The recipe calls for 8 oz of lemon juice and 32 oz of water. How much lemon juice should you use if you start with 28 oz of water?

Make a table of x - and y -values and use it to graph the direct variation equation.

16. $y = \frac{1}{5}x$

17. $y = 2^3x$

Write and graph a direct variation equation that passes through each point.

18. (6, 2)

19. (-1.5, 9)

20. (-5, 90)

21. (7,

3)

22. $\left(-1, -\frac{2}{3}\right)$

23. $\left(\frac{3}{5}, \frac{7}{2}\right)$

24. (10, 25)

25. (3, 165)

For Exercises 26–28, y varies directly with x .

26. If $y = 3$ when $x = 2$, find x when $y = 5$.

27. If $y = \frac{5}{17}$ when $x = 10$, find y when $x = 5$.

28. If $y = -4$ when $x = \frac{1}{2}$, find y when $x = \frac{2}{3}$.

29. A new hybrid car has a 12-gallon gas tank. On one tank of gas, the owner can drive 540 miles. The number of miles traveled varies directly with the number of gallons of gas the car uses.

a. Write an equation that relates the number of miles traveled with the number of gallons of gas used.

b. How many miles can the owner travel on 9 gallons of gas?

30. On a certain calling plan, a 15-minute long-distance phone call costs \$.90. The cost varies directly with the length of the call. Write an equation that relates the cost to the length of the call. How long is a call that costs \$1.32?