Name _____ Date _____

LESSON 2.1

Practice

For use with pages 72–79

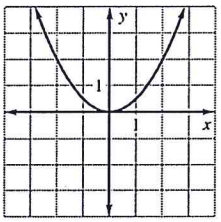
Identify the domain and range of the given relation. Then tell whether the relation is a function.

1. (0, 3), (1, 1), (2, 2), (3, 4), (4, 2)

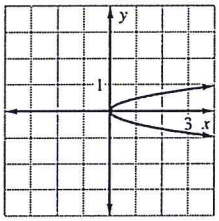
2. (−2, −3), (−1, −1), (0, 1), (0, 3), (1, 5)

Use the vertical line test to determine whether the relation is a function.

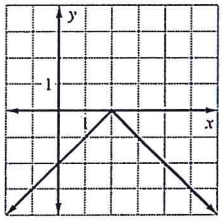
3.



4.

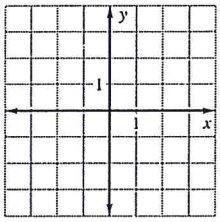


5.

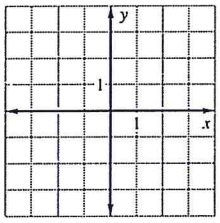


Graph the equation.

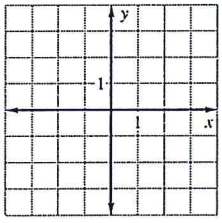
6. $y = 3x + 2$



7. $y = -2x - 2$



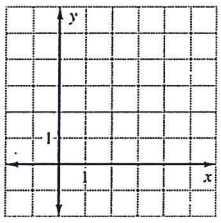
8. $y = -x$



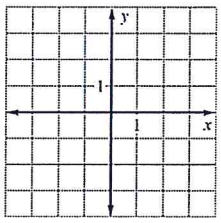
Name _____ Date _____

LESSON 2.1 **Practice** *continued*
For use with pages 72–79

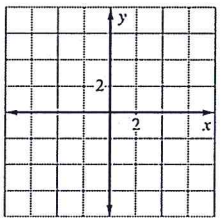
9. $y = -x + 3$



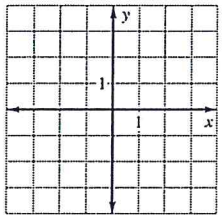
10. $y = \frac{1}{2}x + 2$



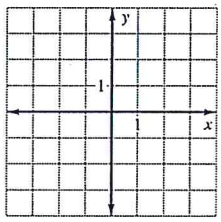
11. $y = 2x - 5$



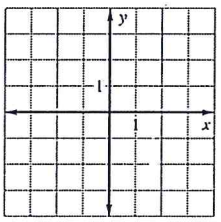
12. $y = x + 2$



13. $y = -1$



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



Tell whether the function is linear. Then evaluate the function for the given value of *x*.

15. $f(x) = x + 5; f(-2)$

16. $f(x) = x^2 + x - 2; f(1)$

17. $f(x) = 3 - 3x; f(2)$

18. $f(x) = |x + 2|; f(-4)$

19. $f(x) = \frac{2}{x - 2}; f(6)$

20. $f(x) = \frac{2}{3}x - 5; f(9)$

Name _____ Date _____

LESSON 2.2

Practice

For use with pages 82–88

Find the slope of the line passing through the given points.

1. (2, 1), (6, 9)

2. (1, 1), (2, −5)

3. (−3, 2), (6, −1)

4. (3, −2), (−1, 7)

5. (0, −5), (−2, −9)

6. $\left(\frac{1}{3}, \frac{1}{2}\right), \left(\frac{5}{3}, \frac{5}{2}\right)$

Tell which line is steeper.

7. Line 1: through (−2, 2), (4, 3)
   Line 2: through (2, 3), (6, 4)

8. Line 1: through (5, 2), (7, 12)
   Line 2: through (−3, −1), (−2, 5)

9. Line 1: through (1, 1), (3, 0)
   Line 2: through (4, 2), (8, −2)

10. Line 1: through (3, 8), (6, 17)
    Line 2: through (0, 1), (−3, 7)

Name _____ Date _____

LESSON 2.2 **Practice** *continued*
For use with pages 82–88

Find the slope of the line passing through the given points. Then tell whether the line *rises, falls, is horizontal,* or *is vertical.*

11. (−2, 4), (2, 5)

12. (3, 1), (3, −2)

13. (8, 15), (12, −1)

14. (5, −2), (2, −2)

15. (9, −3), (−6, 4)

16. (4, 5), (21, 5)

Tell whether the lines are *parallel, perpendicular,* or *neither.*

17. Line 1: through (−6, 2), (3, 5)
Line 2: through (4, 1), (1, 0)

18. Line 1: through (7, 3), (8, 7)
Line 2: through (−5, −4), (−1, −5)

19. Line 1: through (5, 2), (1, −7)
Line 2: through (−1, 3), (9, −1)

20. Line 1: through (5, 9), (7, 13)
Line 2: through (0, 2), (4, 10)

21. **Fuel Efficiency** On Friday, you left for a weekend camping trip with 110 miles on the odometer and 14.5 gallons of gas in the tank of your car. When you returned on Sunday, the odometer read 299 miles and you still had 7.5 gallons of gas left. What was the fuel efficiency of your car on this trip?

22. **Production Rate** When you started your shift at 7:00 A.M., 120 steel valves had already been machined and were ready for assembly. At 3:00 P.M., your shift ended and 424 steel valves were now completed and ready for assembly. The target production rate is 36 steel valves per hour. What was the production rate for your shift? Would your supervisor be satisfied with the work pace?

Name _____ Date _____

LESSON 2.3

Practice

For use with pages 89–97

Find the slope and *y*-intercept of the line.

1. $y = 7x + 8$

2. $y = -13x$

3. $2x + y - 2 = 0$

4. $4x + 2y - 5 = 0$

5. $5x - y + 2 = 0$

6. $-3x + 2y - 4 = 0$

Find the *x*- and *y*-intercepts of the line with the given equation.

7. $y = 4x - 1$

8. $y = -x - 4$

9. $y = -\frac{1}{2}x + 2$

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

11. $y = \frac{4}{3}x - 2$

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

13. $x - y - 3 = 0$

14. $2x - 3y + 6 = 0$

15. $-7x - 14y - 5 = 0$

16. $4x - 2y = 1$

17. $6x + 4y = -5$

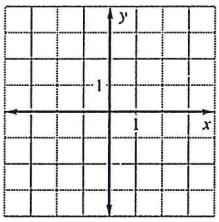
18. $-3x + y = -8$

Name _____ Date _____

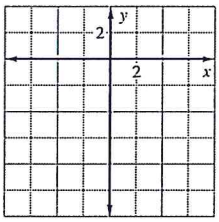
LESSON 2.3 **Practice** *continued*
For use with pages 89–97

Graph the equation.

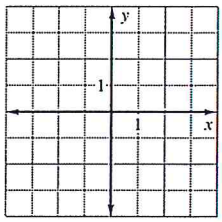
19. $y = 3x + 3$



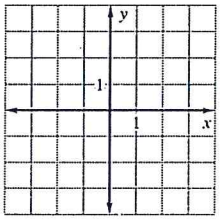
20. $y = -2x - 6$



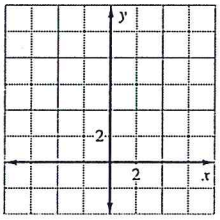
21. $x - 2y + 2 = 0$



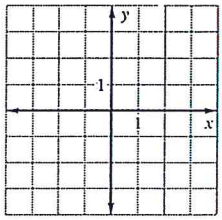
22. $5x + 2y + 6 = 0$



23. $-6x + 3y - 18 = 0$



24. $12x - 8y = -24$



Name _____ Date _____

LESSON 2.3 **Practice** *continued*
For use with pages 89–97

31. Hot Dogs and Hamburgers The caterer for your class picnic charges \$1 for each hot dog and \$2 for each hamburger. You have \$48 to spend. Write a model that shows the different numbers of hot dogs and hamburgers that you could purchase.

32. Commission A car salesperson earns 2% on used car sales and 6% on new car sales. The salesperson wants to earn a \$7000 commission this month. Write a model that shows the different sales amounts of used and new cars that can be sold to reach the target commission.

Name _____ Date _____

LESSON 2.4

Practice

For use with pages 98–104

Write an equation of the line that has the given slope and y-intercept.

1. $m = 3, b = -4$
2. $m = -4, b = 0$
3. $m = 0, b = -5$

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

4. $(4, 3), m = 1$
5. $(-1, 1), m = -2$
6. $(12, 4), m = 0$
7. $\left(\frac{2}{3}, 1\right), m = -3$
8. $\left(-2, \frac{1}{2}\right), m = 8$
9. $\left(\frac{3}{5}, 0\right), m = -5$

Write an equation of the line that passes through the given point and satisfies the given condition.

10. $(-2, 3)$; parallel to $y = 4x - 3$
11. $(3, 7)$; parallel to $y = -3x + 6$
12. $(-1, -4)$; perpendicular to $y = 2x + 5$
13. $(6, -2)$; perpendicular to $y = -5x - 7$

Name _____ Date _____

LESSON 2.4 **Practice** *continued*
For use with pages 98–104

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

14. (3, 4), (0, 3)

15. (−3, −3), (2, 1)

16. (−5, −4), (0, 11)

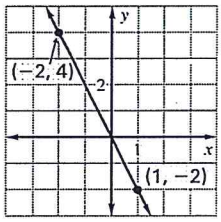
17. (1, −4), (−2, 6)

18. (2, 8), (5, 2)

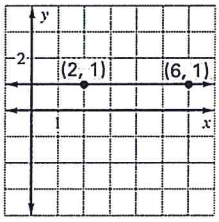
19. (−8, −3), (7, 0)

Write an equation of the line.

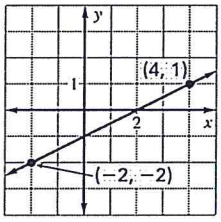
20.



21.



22.



23. Video Store The membership to your local video store is $10 per year and the DVD rental rate is $3.95 per DVD. Write an equation that models the total amount of money you will spend on DVD rentals this year.

In Exercises 24 and 25, use the following information.

Postal Rates The price for U.S. postage stamps has increased over the years. Since 1975, the price has increased from $.13 to $.37 in 2005 at a rate that is approximately linear.

24. Write a linear model for the price of stamps during this time period. Let p represent the price and t represent the number of years since 1975.

25. What would you expect the price of a stamp to be in 2015?

Name _____ Date _____

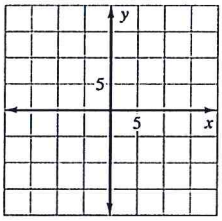
LESSON 2.5

Practice

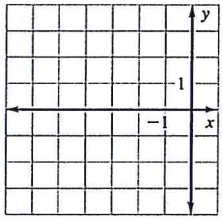
For use with pages 107–111

Write and graph a direct variation equation that has the given ordered pair as a solution.

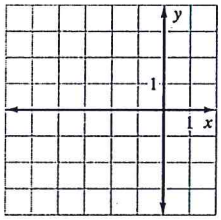
1. (5, 10)



2. (−6, 3)



3. (−5, −2)



The variables x and y vary directly. Write an equation that relates x and y. Then find y when $x = 3$.

4. $x = 6, y = -8$

5. $x = -4, y = -16$

6. $x = 2, y = 14$

7. $x = -4, y = -20$

8. $x = 12, y = -4$

9. $x = 7, y = 4$

10. $x = -6, y = -1$

11. $x = -10, y = -15$

12. $x = 10, y = 4$

Name _____ Date _____

LESSON 2.5 **Practice** *continued*
For use with pages 107–111

Tell whether the equation represents direct variation. If it does, give the constant of variation.

13. $y = -3x$

14. $y + 2 = 8x$

15. $2y - 6 = 0$

16. $6x + y = 2$

17. $-6x + 4y = 0$

18. $3y = \frac{9}{2}x$

Tell whether the data in the table show a direct variation. If so, write an equation relating x and y.

19.

x	-2	-1	0	1	2
y	4	3	2	1	0

20.

x	-3	-1	1	3	5
y	-2	$-\frac{2}{3}$	$\frac{2}{3}$	2	$\frac{10}{3}$

21. **Reading** The number of pages p a student can read varies directly with the amount of time t in minutes spent reading. The student can read 90 pages in 60 minutes. Write an equation that relates p and t. Predict the number of pages the student can read if 90 minutes is spent reading.

22. **Movies** The cost c of going to the movies varies directly with the number n of people attending. A group of four paid \$14 to go to the movies on Friday. Write an equation that relates c and n. How much would it cost for 7 people to go to the movies?