STUDENTS MOVING FROM GEOMETRY TO ALGEBRA 2

NAME _____ DATE _____ PERIOD _____

3-1 Practice

The Distributive Property

Use the Distributive Property to write each expression as an equivalent expression. Then evaluate the expression.

1. $6(80 + 1)$ **2.** $7(70 - 4)$ **3.** $(300 + 6)4$ **4.** $(100 + 10)9$

5. $5(400 - 90)$ **6.** $-8(700 - 3)$ **7.** $4(20 - 9)$ **8.** $(100 - 3)(-7)$

9. $-1(75 - 9)$ **10.** $14(21 - 11)$ **11.** $-25(80 + 2)$ **12.** $31(450 - 18)$

Use the Distributive Property to write each expression as an equivalent algebraic expression.

13. $7(y + 11)$ **14.** $-6(t - 1)$ **15.** $-8(u - 2)$ **16.** $(r + 9)(-4)$

17. $-1(-h + 5)$ **18.** $-2(f + 3)$ **19.** $-4(b - 1)$ **20.** $1(7 - v)$

21. $-2(d - 5)$ **22.** $22(n + 10)$ **23.** $-50(z - 1)$ **24.** $-12(g + 12)$

25. $17(p + 4)$ **26.** $(k - 21)(-8)$ **27.** $(-32 - s)(-9)$ **28.** $-28(a - 5)$

29. $-20(19 - a)$ **30.** $33(d + 4)$ **31.** $-18(-q - 5)$ **32.** $-16(c + 45)$

33. $-19(v - 1)$ **34.** $-1(r + 27)$ **35.** $53(x + 11)$ **36.** $-17(-n + 1)$

37. PLANTS A planter weighs 2 pounds and holds 3 pounds of soil. Write two equivalent expressions for the total weight of nine planters. Then find the weight.

38. UNIFORMS A uniform costs $42 for the sweater and $29 for the slacks. Write two equivalent expressions for the total cost of six uniforms. Then find the cost.

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3-5 Practice

Solving Two-Step Equations

Solve each equation. Check your solution.

1. $6p + 22 = 10$

2. $\frac{r}{3} - 4 = 2$

3. $5d - 9 = -24$

4. $21q - 11 = 10$

5. $\frac{v}{-6} + 1 = 0$

6. $7h + 20 = -8$

7. $8k - 40 = 16$

8. $\frac{w}{2} - 16 = 5$

9. $\frac{s}{4} - 5 = 1$

10. $\frac{x}{8} + 7 = 9$

11. $\frac{z}{10} - 20 = -20$

12. $\frac{r}{-2} + 11 = 15$

13. $9q + 10 = 118$

14. $\frac{n}{5} - 4 = -10$

15. $6w - 125 = 1$

16. $\frac{r}{3} - 16 = 2$

17. $9y - 11 - 5y = 25$

18. $20 - 15d = 35$

19. $\frac{u}{-9} - 8 = -4$

20. $-6h + 4 - 3 + h = 11$

21. $5p - 4p = 7$

22. $18 - \frac{x}{3} = -7$

23. $21 + 9j - 10 = -277$

24. $12b - 9 + 2b - b = -87$

25. $1 + \frac{a}{-9} - 4 = 0$

26. $4w - w - 26 = 19$

27. $5 - 4y + y - 1 = -23$

28. RENTAL AGREEMENTS A furniture rental store charges a down-payment of \$100 and \$75 per month for a table. Hilde paid \$550 to rent the table. Solve $75n + 100 = 550$ to find the number of months Hilde rented the table.

29. BUSINESS At work, Jack must stuff 1000 envelopes with advertisements. He can stuff 12 envelopes in one minute, and he has 112 envelopes already finished. Solve $1000 = 12n + 112$ to find how many minutes it will take Jack to complete the task.

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3-7 Practice

Sequences and Equations

Describe each sequence using words and symbols.

1. 46, 52, 58, 64, …

2. 5, 13, 21, 29, …

3. 9, 14, 19, 24, …

4. 11, 14, 17, 20, …

5. 3, 5, 7, 9, …

6. 44, 60, 76, 92, …

Write an equation that describes each sequence. Then find the indicated term.

7. 20, 33, 46, 59, …; 17th term

8. 29, 38, 47, 56, …; 21st term

9. 101, 103, 105, 107, …; 30th term

10. 64, 67, 70, 73, …; 44th term

11. 26, 29, 32, 35, …; 57th term

12. 112, 140, 168, 196, …; 74th term

13. RUNNING Luisa ran 3 miles on the 3rd day of a month, and she repeated her run every 4 days for the rest of the month. What equation describes the sequence of days of that month that Luisa ran?

14. DEPRECIATION A new hybrid car costs $25,000. If it depreciates at $2,000 of its value each year, find the value of the car over the next 5 years.

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4-6 Practice

Negative Exponents

Write each expression using a positive exponent.

1. 7^{-8} **2.** 10^{-6} **3.** 23^{-1}

4. $(-5)^{-2}$ **5.** $(-18)^{-10}$ **6.** m^{-99}

7. $(-1)^{-12}$ **8.** c^{-6} **9.** p^{-5}

10. g^{-17} **11.** $5z^{-4}$ **12.** $3t^{-1}$

Write each fraction as an expression using a negative exponent.

13. $\frac{1}{2^{10}}$ **14.** $\frac{1}{29^3}$ **15.** $\frac{1}{4^4}$

16. $\frac{1}{39}$ **17.** $\frac{1}{81^7}$ **18.** $\frac{1}{m^4}$

19. $\frac{1}{x^3}$ **20.** $\frac{1}{a^2}$ **21.** $\frac{1}{49}$

22. $\frac{1}{8}$ **23.** $\frac{1}{144}$ **24.** $\frac{1}{169}$

Evaluate each expression if $x = 3$, $y = -2$, and $z = 4$.

25. x^{-4} **26.** y^{-2} **27.** y^{-5}

28. z^{-4} **29.** 5^y **30.** 10^y

31. $3z^{-1}$ **32.** z^y **33.** $(xz)^{-2}$

34. HAIR Hair grows at a rate of $\frac{1}{64}$ inch per day. Write this number using negative exponents.

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4-7 Practice

Scientific Notation

Express each number in standard form.

1. 2.4×10^4

2. 9.0×10^3

3. 4.385×10^7

4. 1.03×10^8

5. 3.05×10^2

6. 5.11×10^{10}

7. 6.000032×10^6

8. 1.0×10^1

9. 8.75×10^5

10. 8.49×10^{-2}

11. 7.1×10^{-6}

12. 1.0×10^{-3}

13. 4.39×10^{-7}

14. 1.25×10^{-4}

Express each number in scientific notation.

15. 40,000

16. 16

17. 876,000,000

18. 4500

19. 151

20. 0.00037

21. 83,000,000

22. 919,100

23. 5,000,000,000,000

24. 0.13

25. 0.0000007

26. 0.0067

NIAGARA FALLS **For Exercises 27 and 28, use the following information.**

Every minute, 840,000,000,000 drops of water flow over Niagara Falls.

27. Write this number in scientific notation.

28. How many drops flow over the falls in a day?

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6-7 Practice

Finding Percents Mentally

Find the percent of each number mentally.

1. 10% of 812

2. 50% of 1044

3. 40% of 25

4. 20% of 45

5. $62\frac{1}{2}$% of 80

6. 80% of 15

7. 30% of 400

8. 75% of 880

9. $16\frac{2}{3}$% of 72

10. $33\frac{1}{3}$% of 150

11. 60% of 2500

12. $37\frac{1}{2}$% of 48

13. 25% of 244

14. 900% of 3

15. 150% of 260

Estimate.

16. 31% of 62

17. 65% of 83

18. 87% of 850

19. 32% of 26

20. 47% of 213

21. 22% of 536

22. 68% of 12

23. 11% of 29

24. 78% of 4

25. $\frac{1}{2}$% of 381

26. $\frac{1}{6}$% of 567

27. $\frac{2}{3}$% of 856

28. 210% of 425

29. 153% of 801

30. 689% of 2981

31. MONEY Last week a waitress made $204 in tips. This week she made 135% of that. How much did she make this week?

Lesson 6-7

NAME _____ DATE _____ PERIOD _____

7-1 Practice

Functions

Determine whether each relation is a function. Explain.

1. {(4, −5), (0, −9), (1, 0), (7, 0)}

2. {(5, −12), (−1, −2), (8, −5), (4, −2), (3, −5)}

3. {(−2, −3), (6, −8), (4, 2), (6, −5), (2, −5)}

4. {(5, 2), (−2, 15), (−7, 15), (1, 5), (4, 15), (−7, 2)}

5.

x	4	−5	11	−5	23
y	−3	1	1	0	6

6.

x	7	14	11	−10	−1
y	−3	−9	−4	−3	15

7.

x	−3.0	3.5	4.1	−3.0	3.4
y	4.2	3.7	−3.8	3.7	4.0

8.

x	11	4	−2	4	−7
y	−7	−2	2	2	6

EMPLOYMENT For Exercises 9–12, use the table, which shows the percent of employed men and women in the U.S. labor force every five years from 1980 to 2000.

9. Is the relation (year, percent of men) a function? Explain.

10. Describe how the percent of employed men is related to the year.

Employed Members of Labor Force		
Year	**Men (% of male population)**	**Women (% of female population)**
1980	77.4	51.5
1985	76.3	54.5
1990	76.4	57.5
1995	75.0	58.9
2000	78.9	67.3

Source: U.S. Census Bureau

11. Is the relation (year, percent of women) a function? Explain.

12. Describe how the percent of employed women is related to the year.

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7-2 Practice

Representing Linear Functions

Find four solutions of each equation. Write the solutions as ordered pairs.

1. $y = x - 5$

2. $y = -7$

3. $y = -3x + 1$

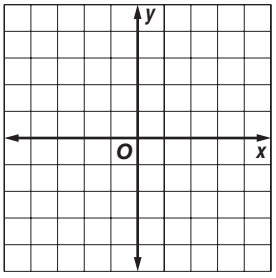
4. $x - y = 6$

5. $y = 2x + 4$

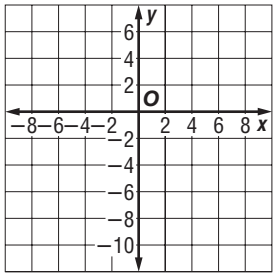
6. $7x - y = 14$

Graph each equation by plotting ordered pairs.

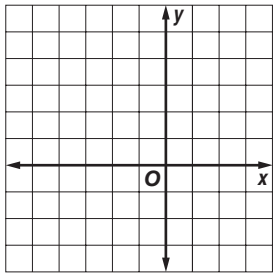
7. $y = 2x - 1$



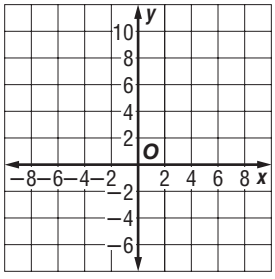
8. $y = -6x + 2$



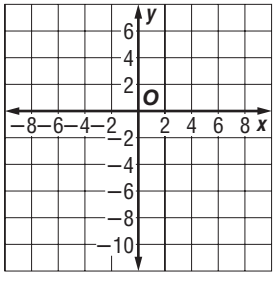
9. $y = x + 4$



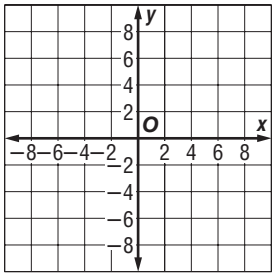
10. $y = 7$



11. $y = 3x - 9$



12. $y = \frac{1}{2}x - 6$



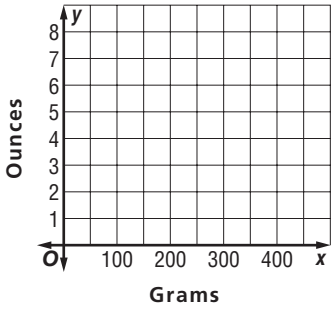
COOKING **For Exercises 13–15, use the following information.**

Kirsten is making gingerbread cookies using her grandmother's recipe and needs to convert grams to ounces. The equation $y = 0.04x$ describes the approximate number of ounces y in x grams.

13. Find three ordered pairs of values that satisfy this equation.

14. Draw the graph that contains these points.

15. Do negative values of x make sense in this case? Explain.



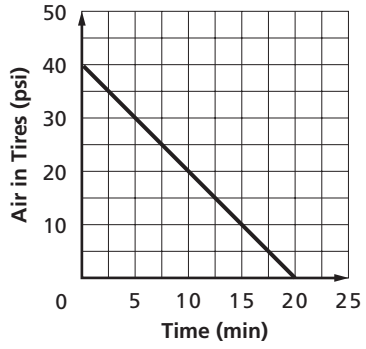
NAME _____ DATE _____ PERIOD _____

7-3 Practice

Rate of Change

Find the rate of change for each linear function.

1.



2.

Time (h)	Distance (km)
x	*y*
0	0
5	510
10	1020
15	1530

TRADE The graph shows the total U.S. exports from 1970 to 2000.

Source: *World Almanac*

3. Find the approximate rate of change between 1970 and 1975.

4. Find the approximate rate of change between 1995 and 2000.

5. Between which two years was the rate of change the least?

TRAFFIC MANAGEMENT For Exercises 6 and 7, use the following information.

San Diego reserves express lanes on the freeways for the use of carpoolers. In order to increase traffic flow during rush hours, other drivers may use the express lanes for a fee. The toll increases with the number of cars on the road. The table shows a sample of possible tolls.

Toll ($)	Traffic Volume (vehicles/h)
1.00	521
2.00	1122
3.00	1551
4.00	2204

6. Find the rate of change in the toll between 521 vehicles/h and 1122 vehicles/h.

7. Find the rate of change in the toll between 2204 vehicles/h and 1551 vehicles/h.

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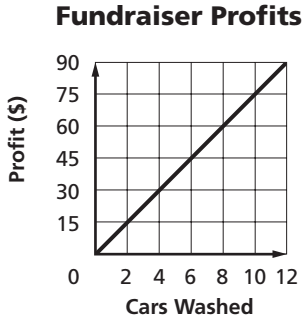
7-4 Practice

Constant Rate of Change and Direct Variation

Find the constant rate of change for each linear function and interpret its meaning.

1.



2.

Time (seconds)	Distance (yards)
x	*y*
1.2	6
2.4	8
3.6	10
4.8	12

Determine whether a proportional linear relationship exists between the two quantities shown in each of the functions indicated. Explain your reasoning.

5. Exercise 1

6. Exercise 2

PAPER COSTS The cost of paper varies directly with the number of reams bought. Suppose 2 reams cost $5.10.

7. Write an equation that could be used to find the cost of x reams of paper.

8. Find the cost of 15 reams of paper.

PHYSICAL SCIENCE Recall that the length spring stretches varies directly with the amount of weight attached to it. A certain spring stretches 5 cm when a 10-gram weight is attached.

9. Write a direct variation equation relating the weight x and the amount of stretch y.

10. Estimate the stretch of the spring when it has a 42-gram weight attached.

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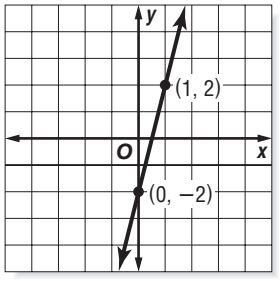
7-5 Practice

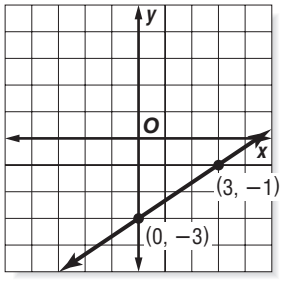
Slope

Find the slope of each line.

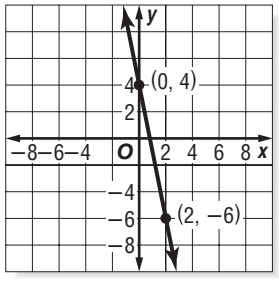
1.



2.



3.



Find the slope of the line that passes through each pair of points.

4. $A(-10, 6), B(-5, 8)$

5. $C(7, -3), D(11, -4)$

6. $E(5, 2), F(12, -3)$

7. $G(-15, 7), H(-10, 6)$

8. $J(13, 0), K(-3, -12)$

9. $L(-5, 3), M(-4, 9)$

10. $P(12, 2), Q(18, -2)$

11. $R(-2, -3), S(-2, -5)$

12. $T(-13, 8), U(21, 8)$

13. CAKES A wedding cake measures 2 feet high in the center and the diameter of the bottom tier is 12 inches. What is the slope of the cake?

14. INSECTS One particularly large ant hill found in 1997 measured 40 inches wide at the base and 18 inches high. What was the slope of the ant hill?

15. ARCHAEOLOGY Today, the Great Pyramid at Giza near Cairo, Egypt, stands 137 meters tall, coming to a point. Its base is a square with each side measuring 230 meters wide. What is the slope of the pyramid?

16. BUSINESS One warehouse uses 7-foot long ramps to load its forklifts onto the flat beds of trucks for hauling. If the bed of a truck is 2 feet above the ground and the ramp is secured to the truck at its end, what is the slope of the ramp while in operation? Round to the nearest hundredth.

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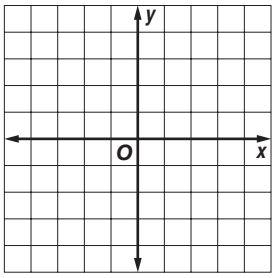
7-6 Practice

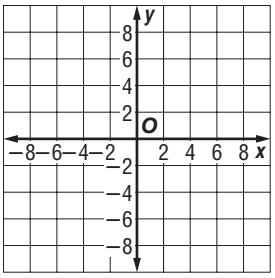
Slope-Intercept Form

Given the slope and *y*-intercept, graph each line.

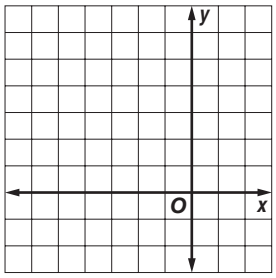
1. slope $= \frac{3}{4}$, y-intercept $= -3$



2. slope $= \frac{5}{6}$, y-intercept $= 1$

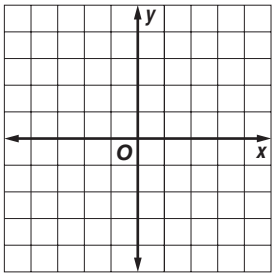


3. slope $= 1$, y-intercept $= 5$

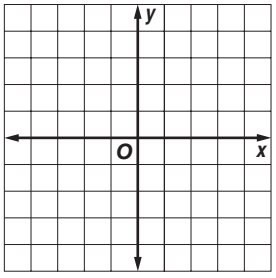


Graph each equation using the slope and *y*-intercept.

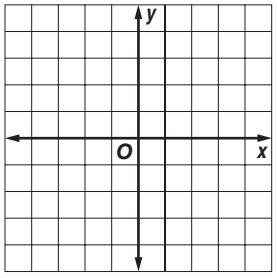
4. $y = -\frac{1}{2}x - 4$



5. $y = x - 4$



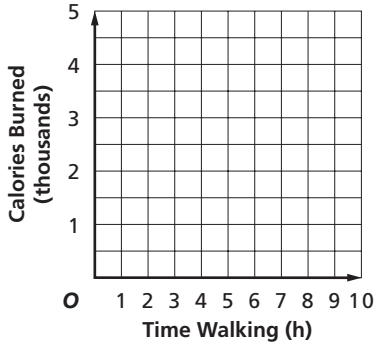
6. $y = -6x + 3$



EXERCISE For Exercises 7 and 8, use the following information.

A person weighing 150 pounds burns about 320 Calories per hour walking at a moderate pace. Suppose that the same person burns an average of 1500 Calories per day through basic activities. The total Calories y burned by that person can be represented by the equation $y = 320x + 1500$, where x represents the number of hours spent walking.

7. Graph the equation using the slope and y-intercept.



8. State the slope and y-intercept of the graph of the equation and describe what they represent.

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7-7 Practice

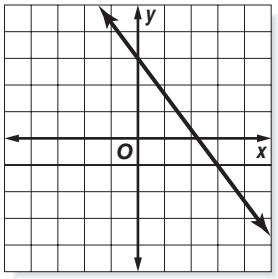
Writing Linear Functions

Write an equation in slope-intercept form for each line.

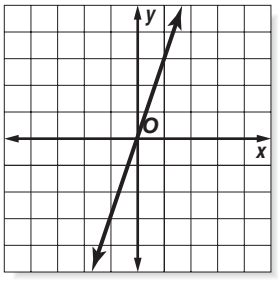
1. slope = 3,
y-intercept = -2

2. slope = 0,
y-intercept = 7

3.



4.



Write an equation in slope-intercept form for the line passing through each pair of points.

5. (9, 0) and (6, −1)

6. (8, 6) and (−8, 2)

7. (7, −5) and (−4, −5)

8. (2, 7) and (−1, 4)

9. (4, 4) and (−8, 10)

10. (0, 2) and (−3, 14)

BUSINESS For Exercises 11 and 12, use the following information.

Flourishing Flowers charges $125 plus $60 for each standard floral arrangement to deliver and set up flowers for a banquet.

11. Write an equation in slope-intercept form that shows the cost y for flowers for x number of arrangements.

12. Find the cost of providing 20 floral arrangements.

INSULATION For Exercises 13 and 14, use the following information.

Renata González wants to increase the energy efficiency of her house by adding to the insulation previously installed. The better a material protects against heat loss, the higher its R-value, or resistance to heat flow. The table shows the R-value of fiberglass blanket insulation per inch of thickness. The existing insulation in Renata's attic has an R-value of 10.

R-value	Thickness (in.)
0.0	0
3.2	1
6.4	2
9.6	3

Source: Oak Ridge National Laboratory

13. Write an equation in slope-intercept form that shows the total R-value y in the attic if she adds x number of inches of additional insulation.

14. Estimate the total R-value in the attic if she adds 6 inches of insulation.

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8-1 Practice

Solving Equations with Variables on Each Side

Solve each equation. Check your solution.

1. $3g - 12 = 9g$

2. $14m = 18 + 12m$

3. $7c - 7 = 4c + 17$

4. $-11t = 15 - 6t$

5. $20s + 4 = 13s - 10$

6. $-2h - 16 = 3h - 6$

7. $27j - 6 = 14j + 7$

8. $-1 + 19w = 11w + 23$

9. $8 - p = -12 - 3p$

10. $9k - 26 = 6k - 8$

11. $28 - 4d = 5d - 17$

12. $2y + 7 = y$

13. $11.7 - 2x = x$

14. $3b + 4.4 = 2.6 - 6b$

15. $\frac{3}{4}y - 6 = \frac{1}{4}y + 10$

16. $2c + 7.5 = 6.2 - 3c$

17. $5d - 11 = 2d + 2$

18. $6a - 10 = 2a - 7$

19. $8n - 6 = -9n + 11$

20. $2f - 9 = 14f + 1$

Define a variable and write an equation to find each number. Then solve.

21. Twice a number is 60 more than five times the number. What is the number?

22. Four times a number is 21 more than the number. What is the number?

23. Eight less than three times a number equals the number. What is the number?

24. A number equals six less than four times a number. What is the number?

25. TENNIS The area of a tennis court is 2808 ft^2, or 8 square feet more than 3.5 times the size of the area of a racquetball court. What is the area of a raquetball court?

26. CELLULAR PHONES One cellular phone carrier charges $26.50 a month plus $0.15 a minute for local calls. Another carrier charges $14.50 a month and $0.25 a minute for local calls. For how many minutes is the cost of the plans the same?

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9-1 Practice

Squares and Square Roots

Find each square root, if possible.

1. $\sqrt{100}$ **2.** $\sqrt{144}$ **3.** $\sqrt{-36}$

4. $\sqrt{121}$ **5.** $\sqrt{-148}$ **6.** $-\sqrt{4}$

7. $-\sqrt{9}$ **8.** $-\sqrt{49}$ **9.** $\sqrt{256}$

10. $\sqrt{529}$ **11.** $\sqrt{361}$ **12.** $-\sqrt{196}$

Use a calculator to find each square root to the nearest tenth.

13. $-\sqrt{2.25}$ **14.** $\sqrt{38}$ **15.** $\sqrt{249}$

16. $\sqrt{131}$ **17.** $\sqrt{7}$ **18.** $\sqrt{52}$

19. $\sqrt{168}$ **20.** $\sqrt{499}$ **21.** $-\sqrt{217}$

22. $\pm\sqrt{218}$ **23.** $\pm\sqrt{42}$ **24.** $\pm\sqrt{94}$

25. $\pm\sqrt{50}$ **26.** $\pm\sqrt{137}$ **27.** $\pm\sqrt{208}$

28. Find the negative square root of 840 to the nearest tenth.

29. If $x^2 = 476$, what is the value of x to the nearest tenth?

30. The number $\sqrt{22}$ lies between which two consecutive whole numbers? Do not use a calculator.

Estimate each square root to the nearest whole number. Do not use a calculator.

31. $\sqrt{76}$ **32.** $\sqrt{123}$ **33.** $\sqrt{300}$

34. $\sqrt{90}$ **35.** $\sqrt{19}$ **36.** $\sqrt{248}$

37. GEOMETRY A square tarpaulin covering a softball field has an area of 441 m^2. What is the length of one side of the tarpaulin?

38. MONUMENTS Refer to Example 4 on page 466 of your textbook. The highest observation deck on the Eiffel Tower in Paris is about 899 feet above the ground. About how far could a visitor see on a clear day?

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9-2 Practice

The Real Number System

Name all of the sets of numbers to which each real number belongs. Let N = natural numbers, W = whole numbers, Z = integers, Q = rational numbers, and I = irrational numbers.

1. 15

2. –41

3. $\frac{1}{4}$

4. $\frac{1}{3}$

5. 0.212121. . .

6. $\sqrt{8}$

7. $\sqrt{45}$

8. $\frac{36}{9}$

9. $-\frac{28}{7}$

10. 2.31

11. 45.6

12. 0.090090009. . .

Determine whether each statement is *sometimes, always,* or *never* true.

13. A decimal number is an irrational number.

14. An integer is a whole number.

15. A natural number is an integer.

16. A negative integer is a natural number.

Replace each ● with <, >, or = to make a true statement.

17. 3.2 ● $\sqrt{9.5}$

18. $1\frac{1}{2}$ ● $\sqrt{3}$

19. $\sqrt{17}$ ● 4.1

20. $\sqrt{7.84}$ ● 2.8

21. $1\frac{3}{4}$ ● $\sqrt{3.0625}$

22. 3.67 ● $\sqrt{12}$

Order each set of numbers from least to greatest.

23. $\sqrt{49}$, $6.\overline{91}$, $7\frac{1}{8}$, $\frac{15}{2}$

24. $4\frac{1}{3}$, $\sqrt{43}$, $\frac{12}{3}$, 4.13

25. -2, -1.5, $-1\frac{8}{10}$, $-\sqrt{6}$

ALGEBRA Solve each equation. Round to the nearest tenth, if necessary.

26. $h^2 = 361$

27. $k^2 = 10.24$

28. $c^2 = 111$

29. $330 = t^2$

30. $0.089 = u^2$

31. $w^2 = 0.0144$

32. GARDENING Ray planted a square garden that covers an area of 200 ft^2. How many feet of fencing does he need to surround the garden?

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13-1 Practice

Polynomials

Determine whether each expression is a polynomial. If it is, classify it as a *monomial*, *binomial*, or *trinomial*.

1. $-3n^2$

2. $v^2 - 9v$

3. $g + 2h + jk$

4. $6b + 2 + \frac{8}{b}$

5. $m + 10$

6. $a^2b^2 + 9$

7. $1 + \sqrt{s}$

8. q

9. $h + h^2 + 1$

10. $m + n - p$

11. $y^4 + 5y - 2$

12. $x - \sqrt{x}$

13. $-5w^7t$

14. $41 - qr^4$

15. $p^4 + p^2 + p$

16. $\frac{2x^2}{7} + \frac{5x}{7} + \frac{3}{7}$

17. $\frac{v}{5} + \frac{1}{2}$

18. $10k - \sqrt{6}$

19. 4

20. $\frac{3}{c^2} - \frac{5}{c} - \frac{1}{2}$

21. $7g^2h^7$

Find the degree of each polynomial.

22. -52

23. xy

24. c

25. $2c^5 - c^3 - c - 9$

26. ab^3

27. $2xy^4z^3 + 7$

28. $r - 25$

29. $\frac{-4}{9}$

30. 12.4

31. $12 + 9t - t^2$

32. $5a^3 - a + 8$

33. $1 - c^2 + c^4$

34. $xy^2 - 3x^2y + xy$

35. $b^5 + b - 1.5$

36. $15k + 2$

37. $cde^8 + c^4 + 2e$

38. $wxyz - 2wx - 5y - yz + 4$

39. $-6g^2h^8 + gh^5 + 3$

40. **METEOROLOGY** *Summer simmer index* measures the discomfort level due to temperature and humidity. Meteorologists calculate this value by using a polynomial similar to $1.98x^2 - 115.93x + 0.01xy - 0.63y + 6.33$. The variable x is the temperature in °F and y is the relative humidity expressed as a whole number. What is the degree of the polynomial?

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13-2 Practice

Adding Polynomials

Find each sum.

1. $8q + 3$
$(+)\ 4q - 2$

2. $9f - 3$
$(+)\ -f - 15$

3. $4r^2 + 11r$
$(+)\ 5r^2 - 3r - 7$

4. $n^2 - 3n$
$(+)\ 3n - 10$

5. $6w^2 + 2w + 7$
$(+) 8w^2 + 3w - 9$

6. $8c^2 - 3c + 15$
$(+)\ 3c^2 + 3c - 11$

7. $-5p^2 - 2p + 4$
$(+)\ 5p^2 + 2p - 4$

8. $7v^2 - 2v$
$(+)\ 7v^2 - v + 5$

9. $5m^2 + 6m - 3$
$(+) 8m^2 + 9m - 2$

10. $7d^2 + 8d - 3$
$(+)\ d^2 + d + 3$

11. $(r^2 + 9) + (-4r^2 + 6r + 10)$

12. $(g^2 + 3g - 6) + (6g^2 - 6g + 1)$

13. $(-2m + 10) + (5m - 3)$

14. $(4x^2 - 7x) + (8x + 5)$

15. $(3k^2 + 9k) + (k^2 - 2k - 4)$

16. $(2a^2 - 3ab) + (4ab - 8b^2)$

17. $(c + 4) + (c^2 - c + 6)$

18. $(5x^2 - 3xy) + (2xy + 9y^2)$

19. $(2y^3 + y^2 + 5) + (2y^2 + 3y)$

20. $(-5p^2 + 6p - 7) + (p^2 - 2)$

21. $(3ab^2 - 2a - 1) + (a^2 + ab + 3)$

22. $(6rs^3 + 4r) + (5rs^3 + 7)$

23. GEOMETRY The lengths of the sides of a triangle are $(x^2 - 5)$, $(7x - 1)$, and x. Find the perimeter of the triangle.

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13-3 Practice

Subtracting Polynomials

Find each difference.

1. $4y + 1$
$(-)\ 3y + 8$

2. $2k + 3$
$(-)\ 7k - 6$

3. $5j^2 + 2j - 2$
$(-)\ j^2 + 9j + 2$

4. $c^2 + 5c - 3$
$(-)\ -c^2 - 5c - 1$

5. $d^2 - 4d + 6$
$(-)\ d^2 + 3d - 8$

6. $2n^2 - 3n - 10$
$(-)\ -n^2 - 3n + 8$

7. $9m^2 - 4m + 13$
$(-)\ 7m^2 - 2m - 3$

8. $d^2 + 3d - 6$
$(-)\ d^2 + 3d + 6$

9. $-6q^2 - 3q + 2$
$(-)\ 3q^2 + 4q + 4$

10. $v^2 - v$
$(-)\ 2v^2 - 9v - 3$

11. $(4n^2 - n - 6) - (-2n^2 - 3n - 14)$

12. $(3k^2 + 9k) - (8k^2 - 12)$

13. $(k^2 - 7) - (k - 11)$

14. $(9x^2 - x - 2) - (3x^2 - x - 4)$

15. $(k^2 - 12) - (k^2 + 6k - 9)$

16. $(k^2 + 4kb) - (5kb + 2b^2)$

17. $(3u^2 - 9) - (u^2 + 21u + 2)$

18. $(5m^2 - 4mn) - (4mn + 8n^2)$

19. $(h^2 + 8h + 5) - (h^2 - 3h - 7)$

20. $(2x^2 - 4x - 8) - (2x - 8x^2)$

21. $(6g^2 + 3g + 2) - (g^2 + g - 4)$

22. $(b^3 + b^2 - ab) - (b^3 + 3b^2 + 5)$

23. POOLS A swimming pool is $(4w^2 - 16)$ feet long and $(w - 16)$ feet wide. How much longer is the length than the width?

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13-4 Practice

Multiplying a Polynomial by a Monomial

Find each product.

1. $5(3k + 8)$

2. $(3h + 6)2$

3. $-2(q - 4)$

4. $(3v - 5)(-7)$

5. $11(4d - 7)$

6. $-8(12c - 6)$

7. $(5g - 10)(-5)$

8. $2(5p - 10)$

9. $-9(3f^2 - 2f - 1)$

10. $2.5(8w + 5)$

11. $(4r^3 - 3r)(–8)$

12. $-6(3x^2 - 2x + 7)$

13. $n(7n + 3)$

14. $(6u - 15)(-u)$

15. $-h(8h + 2)$

16. $(8y + 3)(-y)$

17. $a(4a - 4)$

18. $(5p + 15)(-p)$

19. $-d(-5d + 1)$

20. $-g(1.8g + 10)$

21. $m(0.9m^2 - 0.5)$

22. $(2q^3 - 5q^2 - 2q)(–q)$

23. $k^3(7k^4 - 2k^2 + 6)$

24. $ab(10a^2b + 3a)$

25. $y^2(5x - 2xy + y)$

26. $n(8 - m - 12mn^2)$

27. $(4gh^2 - 2g^2 - h)(-g^2)$

28. $(20q - 4)(-2q)$

29. $14k(2k + 5)$

30. $(9p - 7)(-3p^2)$

31. $(0.2c - 1)(-1.5c^2)$

32. $-6.5n(4n^2 - 8)$

33. $-6x^2(4x^2 - 10x)$

34. $5h^2(2h^3 - h^2 - 7h + 8)$

35. $(4y^2 - 3y + 9)(-2y)$

36. $6gh(8g^2 + 4gh + 3h^2)$

37. $10a(2a^2 - 5ab + 4a)$

38. $(8x^2 - 3xy - xy^2)(-7x)$

39. $-5c^2(2cd - d^2 + 1)$

40. Find the area of a porch that is $3x$ feet wide and $4x + 9$ feet long.

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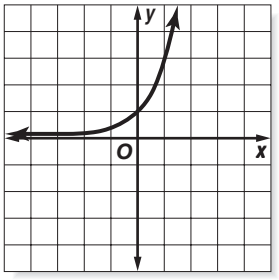
13-5 Practice

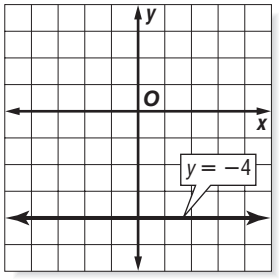
Linear and Nonlinear Functions

Determine whether each graph, equation, or table represents a *linear* or *nonlinear* function. Explain.

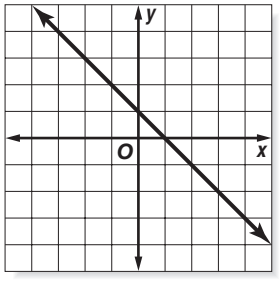
1.



2.



3.



4. $5x - y = 15$

5. $3y + 12x^2 = 0$

6. $5y - x + 3 = 0$

7. $y = 6\sqrt{x} + 10$

8. $y = \frac{8}{x}$

9. $y = -x^2 + 2$

10.

x	y
1	1.0
2	0.8
3	0.6
4	0.4

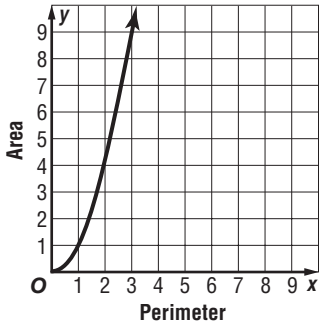
11.

x	y
44	0
48	2.5
52	5.0
56	7.5

12.

x	y
3	1
6	−2
9	−5
12	−14

13. GEOMETRY The graph shows how the area of a square increases as the perimeter increases. Is this relationship linear or nonlinear? Explain.



Lesson 13-5

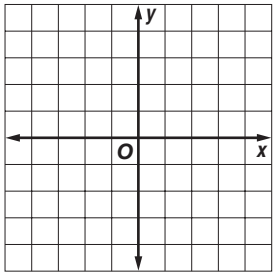
NAME _____ DATE _____ PERIOD _____

13-6 Practice

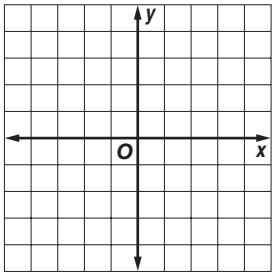
Graphing Quadratic and Cubic Functions

Graph each function.

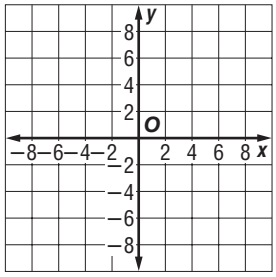
1. $y = 0.4x^2$



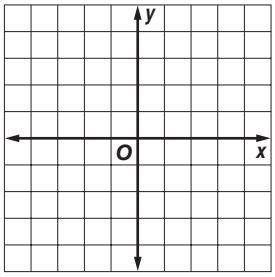
2. $y = 0.4x^3$



3. $y = -2x^2 - 1$



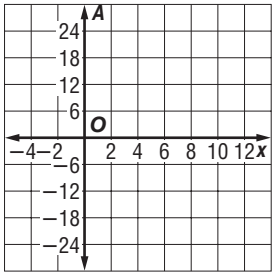
4. $y = -2x^3 - 1$



5. WINDOWS A window maker has 25 feet of wire to frame a window. One side of the window is x feet and the other side is $9 - x$ feet.

a. Write an equation to represent the area A of the window.

b. Graph the equation you wrote in part **a**.



c. If the area of the window is 18 square feet, what are the two possible values of x?