

1.1**Practice**

For use with pages 5–9

Evaluate the expression when $y = 6$.

1. $\frac{24}{y}$ 2. $5y$ 3. $20 - y$ 4. $19 + y$
5. $y + 13$ 6. $54 - y$ 7. $7y$ 8. $\frac{36}{y}$

Evaluate the expression when $m = 7$, $n = 9$, and $q = 10$.

9. nq 10. $\frac{18}{n}$ 11. $m + q$ 12. $29 - m$
13. $58 - m$ 14. $41 + n$ 15. $16q$ 16. $\frac{36}{n}$

17. You are dividing 130 students into g equally sized groups for a field trip. Write a variable expression to find the number of students in each group.

Write a variable expression to represent the phrase.

18. A number added to 27 19. 29 decreased by a number
20. 6 fewer than a number 21. The sum of 16 and a number
22. The product of a number and 7 23. 42 divided by a number
24. The quotient of 56 and a number 25. A number multiplied by 12

In Exercises 26–29, use the following information. You belong to a book club. Your yearly book budget is \$350. Each book in the book club costs \$7.

26. Complete the table.

Books	Cost (dollars)	Amount left (dollars)
1	7	343
2	14	336
3	?	?
4	?	?

27. Write a variable expression for the cost of b books.
28. Write a variable expression for the amount of your budget after b books.
29. How many books will you be able to buy before the \$350 is spent?

1.2**Practice**

For use with pages 10–13

Write the product using an exponent.

1. $43 \cdot 43 \cdot 43 \cdot 43$

2. $100 \cdot 100 \cdot 100$

3. $x \cdot x \cdot x$

4. $p \cdot p \cdot p \cdot p \cdot p$

Evaluate the expression when $n = 8$ and $n = 0.3$.

5. n^2

6. n^3

7. n^4

8. n^6

9. n^8

10. n^7

Write the power in words and as a repeated multiplication. Then evaluate the power.

11. 9^6

12. 16^4

13. 2.5^4

14. 1.4^3

Evaluate the expression when $x = 0.64$ and $y = 15$.

15. x^3

16. x^2

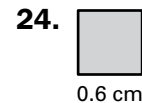
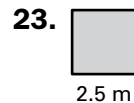
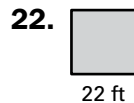
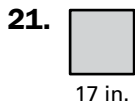
17. x^1

18. y^3

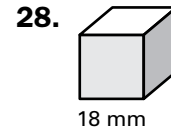
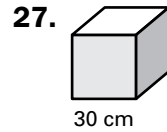
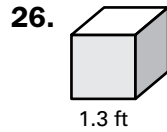
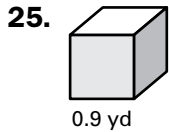
19. y^4

20. y^5

Find the area of the square.



Find the volume of the cube.

29. Compare each number in the top row of the table with the number below it. Describe any pattern you see. Complete the table with a variable expression involving n .

1	2	3	4	...	n
1	16	81	256	...	?

1.3**Practice**

For use with pages 16–21

Evaluate the expression.

1. $6.1(4) + 2(1.5)$

2. $58.4 - 4(9.2)$

3. $\frac{2.6 + 3.9}{7.8 - 7.3}$

4. $\frac{42 - 17}{0.2(25)}$

5. $7(16 - 2^3)$

6. $9(3 + 5^3)$

7. $2.5[10 + (20 - 2^2)]$

8. $3.1[100 - (5^2 \cdot 3)]$

9. $90 \div [(82 - 77) \cdot 9]$

10. Find the sum of 2 cubed and 3 squared.

11. Find the difference of 10 squared and 9 squared.

Evaluate the expression when $a = 16$, $b = 8$, and $c = 7$.

12. $8c \div 4$

13. $(c + 5) \div 6$

14. $3a + 2.1(4)$

15. $\frac{2a}{15 - c}$

16. $7.2b - bc$

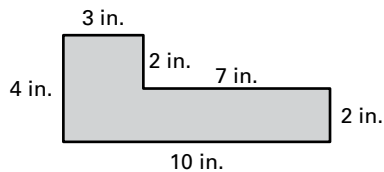
17. $b(a - 9.1)$

18. $ac[(99 - b^2) \cdot 2]$

19. $c^3[4.1(3c - 19)]$

20. $\frac{b^3(9 - 5.9)}{3.2(20.4 - 12.4)}$

21. The formula to find the area A of a rectangle is $A = \ell w$, where ℓ is the length of the rectangle and w is the width of the rectangle. The figure below can be divided into two rectangles. Find the total area of the figure.



22. You complete a project for your social studies class. There are 3 parts to the project, worth a total of 100 points. You get 50 out of 50 points on part A, and 23 out of 25 points on part C. The total score you received is 93 out of 100. How many points did you get on part B?

23. You use a long distance telephone service that charges \$.99 for the first minute of a long distance call and \$.10 for each additional minute. Write and evaluate an expression for the total cost of a 17-minute long distance phone call.

1.4

Practice

For use with pages 22–26

Graph the integers on a number line. Then write the integers in order from least to greatest.

1. $-14, -11, -13, -9, -20, -7$ 2. $-30, 20, 10, -15, -5, 35$
 3. $0, -1, 1, -2, 2, -3, 3$ 4. $40, -50, 60, 20, -30, -10$

Complete the statement using $<$ or $>$.

5. -9 ? -17 6. -20 ? -12 7. 15 ? -18
 8. 0 ? -24 9. -32 ? 21 10. 27 ? -14

State the absolute value of the number.

11. -73 12. -80 13. 16
 14. 106 15. -34 16. -54

State the opposite of the number.

17. -98 18. -77 19. 45
 20. 70 21. 63 22. -23

Evaluate the expression when $x = -7$.

23. $|-x|$ 24. $|x| + 4$ 25. $2|x|$ 26. $6|x|$
 27. $|x| - 5$ 28. $|x| + 14$ 29. $-x - 3$ 30. $-x + 10$

31. The table shows the daily low temperatures recorded over a seven-day period in a town.

- a. Did the daily low temperature *increase* or *decrease* from Tuesday to Wednesday?
 b. Did the daily low temperature *increase* or *decrease* from Thursday to Saturday?
 c. Which day's low temperature was lowest? Which was highest?

Day	Temperature
Sunday	-10°C
Monday	-5°C
Tuesday	-11°C
Wednesday	-10°C
Thursday	-6°C
Friday	-7°C
Saturday	-9°C

Practice

For use with pages 28–33

Tell whether the sum is positive or negative. You do not need to find the sum.

1. $-27 + (-16)$

2. $-18 + 75$

Use a number line to find the sum.

3. $-15 + (-4)$

4. $-21 + (-5)$

5. $-6 + 35$

6. $-42 + 10$

7. $11 + (-47)$

8. $9 + (-53)$

9. $-106 + (-3)$

10. $-94 + (-1)$

11. $81 + (-7)$

Find the sum.

12. $-41 + 30$

13. $-15 + 27$

14. $-21 + (-34)$

15. $-51 + (-23)$

16. $61 + (-33)$

17. $29 + (-48)$

18. $64 + (-17)$

19. $91 + (-26)$

20. $-46 + (-75)$

21. $-9 + 12 + (-4)$

22. $-22 + (-13) + 6$

23. $55 + (-26) + 47$

Evaluate the expression when $a = 8$ and $b = -14$.

24. $a + (-23)$

25. $-a + b$

26. $-72 + b$

27. $b + 39$

28. $a + (-b)$

29. $-61 + a$

30. The temperature at 6 A.M. is -10° Fahrenheit. During the day, the temperature rises 6°F , drops 3°F , rises 2°F , and drops 8°F . Write an integer to represent each value. What is the temperature after these changes?

31. The table shows incomes and expenses for a small music store in one week. Write an integer to represent each value. Then find the net profit for the week.

Income		Expense	
Instruments	\$800	Displays	\$110
Sheet music	\$100	Salaries	\$400
Lessons	\$150		

1.6**Practice**

For use with pages 34–38

Find the difference.

1. $7 - 11$

2. $15 - 26$

3. $4 - (-20)$

4. $13 - (-8)$

5. $-12 - 9$

6. $-19 - 28$

7. $-2 - (-24)$

8. $-18 - (-5)$

9. $-21 - (-6)$

Evaluate the expression when $x = -14$ and $y = -3$.

10. $x - y$

11. $29 - x$

12. $x - (-17)$

13. $-27 - y$

14. $y - 18$

15. $x - (-23)$

16. $x - 4 - 9$

17. $15 - y - 7$

18. $31 - 35 - y$

Find the change in temperature or elevation.

19. From -16°C to 23°C

20. From -47°C to -38°C

21. From 9°F to -12°F

22. From -16°F to -27°F

23. From -64 meters to -40 meters

24. From -20 meters to 50 meters

25. From 120 yards to -45 yards

26. From -16 feet to -32 feet

27. Find the value of the expression $-9 - (-4) - 6$.

28. Find the value of the expression $102 - (-7) - 270$.

29. A group of hikers on a mountain began at an elevation of 3040 feet above sea level and stopped at an elevation of 2319 feet above sea level. What was their change in elevation between these points? How can you tell from the change in elevation whether the hikers were going up or down the mountain?

30. The temperature at 6 A.M. was 63°F . At 3 P.M., the temperature was 41°F . What was the change in temperature?

Practice

For use with pages 39-40

Find the mean, median, mode(s), and range of the data.

1. Times (in minutes) to finish a 10-kilometer race: 63, 63, 53, 61, 55, 62, 56, 58, 60, 63
2. Costs (in dollars) of weekly grocery bills: 90, 42, 81, 26, 11, 55, 131, 108
3. Daily low temperatures (in degrees Fahrenheit): -6 , 4 , -3 , 11 , 14 , 11 , 7
4. Number of stories in buildings: 3 , 18 , 21 , 5 , 7 , 42 , 30
5. Number of times each athlete walked around a track: 5 , 20 , 4 , 8 , 21 , 16 , 14 , 12 , 13 , 16
6. Ages of students in a class: 15 , 15 , 16 , 14 , 15 , 15 , 16 , 14 , 14 , 15
7. Daily high temperatures (in degrees Celsius): 3 , -4 , -5 , 0 , -2 , 2 , -2
8. Test scores: 85 , 92 , 90 , 78 , 82 , 88 , 95 , 76 , 81 , 70
9. Number of students in a class: 18 , 22 , 15 , 27 , 25 , 21 , 23 , 24
10. Prices (in dollars) of sofas at a furniture store: 575 , 685 , 990 , 550 , 790 , 825 , 890
11. **Test Scores** Suppose the value 60 is included in the data set from Exercise 8. Describe the effect of this value on the mean, median, mode, and range.
12. **Class Size** Suppose each value is doubled in the data set from Exercise 9. Describe the effect this doubling has on the mean, median, mode, and range.
13. **Furniture** Suppose the sofa that costs $\$990$ from Exercise 9 goes on sale for $\$890$. Describe the effect of this discount on the mean, median, mode, and range.
14. **Challenge** The entrée prices at a restaurant are as follows: $\$21.50$, $\$19.95$, $\$13.50$, $\$12.95$, $\$15.50$, $\$22.95$, $\$27.95$, $\$24.50$, and $\$19.95$. If the restaurant owner wanted to advertise the restaurant as a place to dine on a budget, what measure of central tendency do you think the owner would use to determine the average price of an entrée? *Explain.*

1.7

Practice

For use with pages 41–46

Tell whether the product or quotient is *positive* or *negative*. You do not need to find the product or quotient.

1. $16(-23)$ 2. $\frac{-72}{9}$ 3. $-26(-17) \div 13$

Find the product or quotient.

4. $25(-5)$ 5. $-29(-4)$ 6. $-124 \div 31$
 7. $98 \div (-14)$ 8. $\frac{-102}{-17}$ 9. $-32(9)$
 10. $-42(-6)$ 11. $201 \div (-67)$ 12. $-612 \div (-18)$
 13. $\frac{252}{-4}$ 14. $-19(7)$ 15. $-21(-11)$

Simplify.

16. $-15(16)(4)$ 17. $20(-13)(-32)$ 18. $-220 \div 11 \div (-4)$
 19. $140 \div (-7) \div (-5)$ 20. $24(-8) \div (-6)$ 21. $\frac{-9(27)}{3}$

Without performing the indicated divisions, complete the statement using $>$, $<$, or $=$.

22. $-642 \div 214$? $-170 \div (-10)$ 23. $-344 \div (-86)$? $-796 \div 199$

24. Evaluate the expression $\frac{5y}{6}$ when $y = 18$.

25. Evaluate the expression $\frac{-2m}{9}$ when $m = 27$.

26. The table shows the lowest windchill temperature for each day recorded over two weeks. Find the mean lowest windchill temperature.

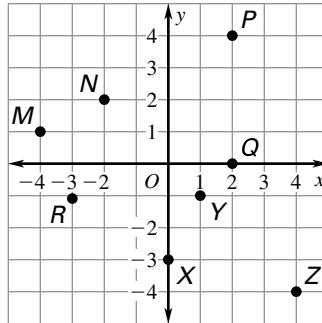
Day	Windchill (in °C)	Day	Windchill (in °C)
1	-4	8	-4
2	-5	9	-6
3	-7	10	-2
4	-3	11	-4
5	-3	12	-6
6	-6	13	-10
7	-1	14	-9

1.8**Practice**

For use with pages 47–51

Give the coordinates of the point.

- | | |
|--------|--------|
| 1. X | 2. Y |
| 3. Z | 4. M |
| 5. N | 6. P |
| 7. Q | 8. R |



Plot the point in a coordinate plane. Describe the location of the point.

- | | | |
|---------------|----------------|---------------|
| 9. $(-7, 6)$ | 10. $(-5, -3)$ | 11. $(2, 3)$ |
| 12. $(5, 2)$ | 13. $(-4, 0)$ | 14. $(3, -6)$ |
| 15. $(-2, 1)$ | 16. $(5, 0)$ | 17. $(0, -2)$ |
18. Use a coordinate plane.
- Plot the points $(0, 0)$, $(0, 4)$, $(5, 4)$, $(8, 2)$, and $(5, 0)$. Connect the points in order. Connect the last point to the first point.
 - Identify the figure. Explain your reasoning.
19. Use the variable expression $3x - 1$.
- Evaluate the expression when $x = -3, -2, -1, 0, 1, 2$, and 3 .
 - Use your results from part (a) to write a list of ordered pairs in the form $(x, 3x - 1)$.
 - Plot the ordered pairs $(x, 3x - 1)$ from part (b) in a coordinate plane.
 - Describe what you notice about the points.
20. The table shows the number of women who finished the New York City Marathon from 1997 to 2001.

Year	1997	1998	1999	2000	2001
Women Finishers	8413	8332	9160	8332	6853

- Make a scatter plot of the data.
- Describe any relationship you see.

2.1

Practice

For use with pages 63–68

Evaluate the expression using mental math. Justify each of your steps.

1. $4(19)(-25)$ 2. $17 + 32 + 23$ 3. $6.8 + 9.7 + 2.2$
 4. $3.06 + 5.37 + 4.94$ 5. $10(-8)(-10)(4)$ 6. $-15(-9)(4)(5)$

Evaluate the expression when $a = 10$, $b = -4$, and $c = -2$.

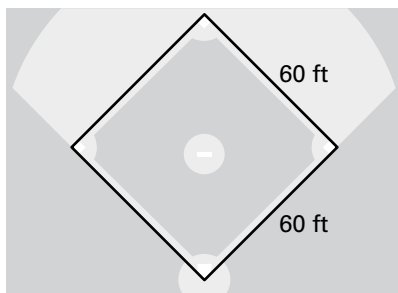
7. a^2bc^2 8. $23 \cdot 5c^2$ 9. $3bc^2$
 10. $a^2b \cdot 6$ 11. $9a^2 + 9b \cdot 25$ 12. $3b + 5a + (-6c)$

Simplify the expression.

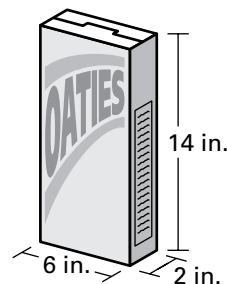
13. $s + 7 + 96$ 14. $-33 + j + 14$ 15. $-21(3t)$
 16. $32r(-6)$ 17. $5.36 + p + 6.47$ 18. $-2.05x(3.01)$
 19. Identify the property illustrated by the statement $(14 \cdot 7) \cdot x = 14 \cdot (7 \cdot x)$.
 20. Identify the property illustrated by the statement $18^3 + 0 = 18^3$.

Use a conversion factor to perform the indicated conversion.

21. 27 yards to feet 22. 160 kilometers to meters
 23. 540 seconds to minutes 24. 112 ounces to pounds
 25. The area of the infield of a college softball field is 3600 square feet. Use a conversion factor to find the area of the infield of a college softball field in square yards.



26. During the summer, you work 5 hours a day as a lifeguard at a beach and earn \$8 each hour. Use properties of multiplication to find how much money you earn during a 6-day work week.
 27. The cereal box at the right is 14 inches high, 6 inches long, and 2 inches wide. The formula for the volume of a box is $V = \ell wh$. Find the volume of the box in cubic inches.



2.1

Practice

For use with pages 69-70

Complete the statement. Round to the nearest whole number.

1. 7 oz \approx ? g 2. 2 t \approx ? kg 3. 83 fl oz \approx ? mL
 4. 28 cm \approx ? in. 5. 90 ft \approx ? m 6. 49 L \approx ? gal

Complete the statement using <, >, or =.

7. 6 oz ? 170 g 8. $\frac{1}{2}$ t ? 440 kg 9. 1612 mi ? 2596 km
 10. 17.26 in. ? 48.84 cm 11. 2 qt ? 1 L 12. 6.18 lb ? 2.88 kg
 13. 29 fl oz ? 857.62 mL 14. 31 gal ? 115 L 15. 1.524 m ? 5 ft

Complete the statement. Round to the nearest whole number.

16. 9 lb \approx ? g 17. 4 qt \approx ? mL 18. 3 t \approx ? kg
 19. 17 yd \approx ? m 20. 6000 mL \approx ? gal 21. 50 L \approx ? pt

22. **Luggage** A large suitcase weighs 45 pounds. What is this weight in kilograms?
23. **Sprinting** A track-and-field athlete sprinted 55 meters. Four minutes later, he sprinted 185 feet. Which distance is longer? *Explain* your reasoning.
24. **Travel** You drive 85 miles from Tampa to Orlando. What is this distance in kilometers?
25. **Challenge** You walk 2.5 miles on Sunday, 3 miles on Monday, 2 miles on Tuesday, 3.5 miles on Wednesday, 4 miles on Thursday, and you rest on Friday and Saturday. Your goal was to walk 28,000 meters over the course of the week. How many more meters would you have needed to walk to achieve your goal? *Explain* your reasoning.

2.2

Practice

For use with pages 73–77

Use the distributive property to evaluate the expression.

1. $15(7 + 20)$ 2. $10(6.4 + 8.9)$ 3. $-5(24 - 17)$
 4. $(4 - 16)(-8)$ 5. $(29 - 14)(-3)$ 6. $12(11.3 + 7.8)$

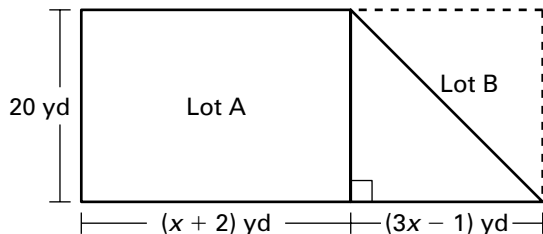
Evaluate the expression using the distributive property and mental math.

7. $312(-4)$ 8. $487(6)$ 9. $17.98(3)$
 10. $8(1.25)$ 11. $-7(82)$ 12. $191(-5)$

Use the distributive property to write an equivalent variable expression.

13. $11(s + 9)$ 14. $-21(x - 7)$ 15. $13(20 - a)$
 16. $-8(17 + b)$ 17. $(r + 1.68)(-0.1)$ 18. $3.25(5.02 - t)$

19. You and a friend go to a restaurant. You each order a salad, a cup of soup, and a drink. Each salad costs \$5.99, each cup of soup costs \$3.90, and each drink costs \$1.15. Use the distributive property to find the total cost of the meal.
20. There are several rectangular parcels of land for sale in a neighborhood. The Gonzalez family wants to purchase Lot A and half of the neighboring lot.
- Use the distributive property to find the area, in square yards, of Lot A.
 - Use the distributive property to find the area, in square yards, of half of Lot B.
 - Find the total area of the land the Gonzalez family wishes to purchase.



Find the area of the rectangle or triangle.

