

* Only Complete Even Numbers

Chapter 1 Supplementary Problems

Find each sum.

1. $3,289 + 6,573$

3. $984 + 321$

5. $64,829 + 92,081$

2. $324,905 + 8,713$

4. $5,075 + 837$

6. $573 + 43,807$

Find each difference.

7. $12,306 - 8,729$

9. $625 - 98$

11. $485,287 - 251,876$

8. $5,537 - 723$

10. $329,610 - 32,106$

12. $3,082 - 93$

Find each product.

13. 589×251

15. 67×32

17. 630×8

14. 41×57

16. 24×9

18. 49×34

Find each quotient. Remember to write any remainder as part of the quotient.

19. $5,544 \div 66$

21. $166 \div 40$

23. $10,908 \div 8$

20. $576 \div 24$

22. $23,137 \div 32$

24. $756 \div 36$

Estimate each answer.

25. $82,573 + 15,987$

28. $192,309 - 47,367$

26. 614×321

29. $73,582 \div 67$

27. $5,920 + 5,231$

30. $25,308 \div 39$

Tell whether each statement is *true*, *false*, or *open*.

31. $24 - n = 15$

33. $826n = 24,078$

35. $64 \div 8 = n$

32. $11 \times 11 = 111$

34. $12 + 3 = 36$

36. $634 \times 7 = 4,438$

Classify each expression as *numerical* or *algebraic*. Then name the operation(s) and identify any variables.

37. $816 \div 15$

40. $w \div 33$

38. $15x$

41. $4 + 3 \times 9$

39. $3y - 14$

42. $5a + 6$

Evaluate each expression.

43. $16 + n$ when $n = 14$.

45. $49 - z$ when $z = 13$.

44. $125 \div c$ when $c = 5$.

46. $16 - 3n$ when $n = 3$.

Write *true* or *false*.

47. $3m = 42$ when $m = 15$.

49. $y \div 42 = 6$ when $y = 252$.

48. $24 - e = 9$ when $e = 15$.

50. $31 + n = 49$ when $n = 80$.

Chapter 2 Supplementary Problems

Identify place or value.

1. the place of 6 in the decimal 135.0861
2. the value of 3 in the decimal 8,346.05
3. the place of 4 in 267.0914
4. the value of 9 in 89.43

Add or subtract.

5. $0.978 + 6.84$
6. $4.7301 - 2.73$
7. $8 - 0.318$
8. $\$80 - \29.98
9. $35.45 + 1.035$
10. $6.4 + 5.31 + 0.675$

Multiply. Round to the nearest thousandth when necessary.

11. 200×8.183
12. 0.497×3.25
13. $\$16.88 \times 3.75$
14. 84.51×6.2
15. 4.135×6.512
16. 6.57×10^3

Divide. If necessary, round to the nearest thousandth.

17. $32.6 \div 100$
18. $651 \div 9.3$
19. $32.9 \div 0.4$
20. $94.58 \div 3.6$
21. $57.81 \div 10^2$
22. $64.4 \div 10^3$

Write each decimal as a fraction. Simplify your answer.

23. 0.750

25. 0.375

24. 0.500

26. 0.120

Write each fraction as a decimal. Round to the nearest hundredth if necessary.

27. $\frac{3}{11}$

29. $\frac{27}{100}$

28. $\frac{15}{16}$

30. $\frac{7}{9}$

Find the interest earned. Use the formula $I = prt$.

31. What is the interest earned on \$32,000 at $6\frac{1}{2}\%$ for 5 years?

32. What is the interest earned on \$2,500 at 5.3% for 4 years?

Evaluate each expression. Round to the nearest hundredth if necessary.

33. $y + 3.14$ when $y = 12.84$

34. $2l + 2w$ when $l = 4.6$ and $w = 6.25$

35. $4.5c - 6.9b$ when $c = 4.6$ and $b = 2.4$

36. $x \div 3.2$ when $x = 45.73$

Write *true* or *false*.

37. Is $4.2s = 25.2$ a *true* or *false* statement when $s = 6$?

38. Is $403.2 \div s = 4.2$ a *true* or *false* statement when $s = 9.6$?

39. Is $21.7 + s = 38.1$ a *true* or *false* statement when $s = 16.4$?

40. Is $s + 0.375 = 0.380$ a *true* or *false* statement when $s = 5$?

Chapter 3 Supplementary Problems

Evaluate each statement. Write *true* or *false*.

1. $6|32$

4. $3|265$

7. $8|448$

2. $7|84$

5. $4|76$

8. $9|4,509$

3. $10|3,560$

6. $2|843$

Is each number divisible by 2? by 3? by 4? by 5? by 6? by 8? by 9? by 10?

9. 84

11. 3,120

10. 430

12. 32,022

Decide whether each number is *prime* or *composite*.

13. 123

15. 101

14. 196

16. 187

Find the greatest common divisor.

17. (21, 28)

19. (3y, 42)

18. (6, 16)

20. (8, 64a)

Use the distributive property to find the product of each expression.

21. $5(6 + 4)$

23. $6(b + 9)$

25. $4(c + 15 + 5a)$

22. $7(3 + 4)$

24. $21(5 + 3x)$

26. $17(8 + d + 6p)$

Find the greatest common divisor.

27. $12c + 24$

29. $9xc + 18x$

31. $12z + 20h$

28. $15 + 25y$

30. $6j + 18k$

32. $13y + 21t$

Factor each expression.

33. $3y + 21$

34. $25x + 35$

35. $10c + 5$

36. $6u + 4$

37. $24s + 28m$

38. $12q + 18n$

39. $7z + 14b$

40. $6j + 15k$

Find the LCM.

41. LCM (5, 30)

42. LCM (16, 24)

43. LCM (9, 30)

44. LCM (15, 50)

45. LCM (64, 16)

46. LCM (12, 20)

Use a calculator and find the value of each expression.

47. $6 \cdot 8^3$

48. $3^3 \cdot 4^6$

49. $8 \cdot 13 \cdot 23^3$

50. $5^2 \cdot 3^4 \cdot 2^5$

Write in scientific notation.

51. 35,210,000,000

52. 4,500,000

53. 0.0000375

54. 0.000000089

55. 49.7

Chapter 4 Supplementary Problems

Express each improper fraction as a mixed number and express each mixed number as an improper fraction.

1. $2\frac{2}{3}$

2. $\frac{11}{3}$

3. $\frac{32}{5}$

4. $1\frac{7}{8}$

5. $\frac{15}{7}$

6. $6\frac{5}{9}$

7. $3\frac{3}{4}$

8. $\frac{21}{4}$

Write two equivalent fractions for each fraction.

9. $\frac{7}{8}$

10. $\frac{3}{5}$

11. $\frac{1}{8}$

12. $\frac{5}{14}$

13. $\frac{9}{15}$

14. $\frac{11}{12}$

15. $\frac{1}{50}$

16. $\frac{1}{10}$

Express each fraction in simplest form.

17. $\frac{10}{25}$

18. $\frac{4}{30}$

19. $\frac{6}{42}$

20. $\frac{15}{45}$

21. $\frac{3}{27}$

22. $\frac{18}{24}$

23. $\frac{8}{18}$

24. $\frac{21}{30}$

Order from least to greatest.

25. $\frac{1}{2}$ $\frac{1}{5}$ $\frac{3}{10}$

26. $\frac{5}{12}$ $\frac{2}{3}$ $\frac{1}{4}$

27. $\frac{2}{9}$ $\frac{5}{6}$ $\frac{5}{18}$

28. $\frac{19}{21}$ $\frac{3}{7}$ $\frac{2}{3}$

Add, subtract, multiply, or divide. Simplify your answer if possible.

29. $\frac{3}{10} + \frac{4}{5}$

30. $\frac{2}{3} - \frac{1}{2}$

31. $4\frac{1}{2} \cdot 3\frac{3}{4}y$

32. $1\frac{3}{24} - \frac{11}{12}$

33. $\frac{5}{6} \div \frac{7}{8}$

34. $3\frac{3}{16} + 5\frac{3}{4}$

35. $\frac{4}{7} \cdot \frac{4}{7}$

36. $2\frac{5}{8} - 1\frac{3}{24}$

37. $9\frac{1}{3}g + 6\frac{2}{5}g$

38. $2\frac{6}{7} \cdot 2\frac{4}{5}$

39. $4\frac{7}{8} \div \frac{5}{8}$

40. $5\frac{1}{2} - 3\frac{3}{16}$

41. $\frac{4}{7} \div \frac{1}{2}$

42. $3\frac{1}{8} + 2\frac{15}{16}$

43. $3\frac{3}{5} \div 2\frac{1}{4}$

44. $1\frac{7}{12} \div 1\frac{1}{3}$

45. $6\frac{5}{12}m \cdot 1\frac{1}{3}$

46. $5\frac{1}{3}n + 5\frac{5}{6}n$

47. $2\frac{1}{4} \cdot 6\frac{2}{3}$

48. $3\frac{6}{7} \div 4\frac{1}{2}$

49. $1\frac{8}{9} \cdot 3\frac{3}{5}$

50. $4\frac{1}{4} - 2\frac{15}{16}$

Chapter 5 Supplementary Problems

Simplify each expression by following the order of operations.

1. $6 + 3 \cdot 8$

4. $12(10 - 9) + 3 \cdot 5$

7. $11 + 3(10 - 7)$

2. $12 \div 3 \cdot (3 + 4)$

5. $6 \cdot 7 \div 3 + 4$

8. $5 + 4 - 3 \cdot 6 \div 2$

3. $28 - 20 \div 5$

6. $(5 + 7) \div 4 + 3 \cdot 2$

Evaluate each expression from $n = 6$.

9. $n + 6$

12. $8n + 5$

15. $6n - 30$

18. $5n - 3n$

10. $n - 3$

13. $\frac{n}{11} + 21$

16. $1 + \frac{1}{n}$

11. $50 - 3n$

14. $\frac{n}{3} - 2$

17. $\frac{2n}{3} + \frac{3}{2n}$

Tell whether each equation is *true* or *false* when the given number is substituted for x .

19. $5(7) - x = 30$ when $x = 5$

23. $15 + 4x = 23$ when $x = 2$

20. $x + 4(x) = 40$ when $x = 10$

24. $3x \cdot 4 = 16$ when $x = 4$

21. $26 + x = 20$ when $x = 6$

25. $6 + 8x = 62$ when $x = 7$

22. $30 - 3x = 9$ when $x = 7$

Solve for x . Write your answer in simplest form.

26. $x + 18 = 23$

30. $3\frac{3}{4} - x = 2\frac{1}{8}$

27. $32 - x = 18$

31. $\frac{1}{2}x - \frac{1}{2} = 5$

28. $\frac{2}{3}x + \frac{2}{3} = 5\frac{2}{3}$

32. $\frac{7}{8} + \frac{3}{8}x = 6\frac{7}{8}$

29. $\frac{6}{7} + 3x = 12\frac{6}{7}$

Simplify each complex fraction.

33. $\frac{\frac{2}{3}}{\frac{1}{3}}$

35. $\frac{\frac{3}{4}}{2}$

37. $\frac{\frac{1}{4}}{\frac{1}{16}}$

39. $\frac{\frac{10}{2}}{\frac{3}{3}}$

34. $\frac{\frac{4}{5}}{\frac{4}{7}}$

36. $\frac{\frac{6}{7}}{\frac{8}{8}}$

38. $\frac{\frac{2}{3}}{6}$

40. $\frac{\frac{15}{16}}{4}$

Simplify. Write your answers in simplest form.

41. $\frac{2}{7b} + \frac{1}{7b}$

45. $\frac{13}{16a} - \frac{1}{2a}$

42. $\frac{19}{20x} - \frac{1}{4x}$

46. $\frac{7}{8j} + \frac{3}{8j} + \frac{5}{8j}$

43. $\frac{7}{24g} + \frac{3}{8g}$

47. $\frac{8}{9y} - \frac{1}{9y} + \frac{2}{9y}$

44. $\frac{9}{10t} - \frac{3}{4t}$

48. $\frac{3}{4c} - \frac{2}{3c} + \frac{1}{6c}$

Multiply. Write your answer in simplest form.

49. $\frac{3}{5} \cdot \frac{5}{6z}$

53. $\frac{2}{7h} \cdot \frac{21}{24}$

50. $\frac{3}{8e} \cdot \frac{8}{15}$

54. $\frac{3}{5m} \cdot \frac{8}{9}$

51. $\frac{24}{25} \cdot \frac{5p}{8}$

55. $\frac{5}{12} \cdot \frac{7}{15f}$

52. $\frac{15}{16k} \cdot \frac{8}{9}$

Chapter 6 Supplementary Problems

Express each ratio as a fraction in simplest form.

1. 50 to 2

2. 18:24

3. $\frac{60}{22}$

4. 52:12

5. 8 to 64

6. $\frac{6}{42}$

7. 108:9

8. $\frac{15}{35}$

Is each proportion a true proportion? Write *yes* or *no*.

9. $\frac{3}{4} = \frac{15}{20}$

10. $\frac{5}{9} = \frac{30}{72}$

11. $\frac{15}{35} = \frac{3}{5}$

12. $\frac{5}{16} = \frac{30}{96}$

Solve for the variable in each proportion.

13. $\frac{v}{8} = \frac{9}{24}$

14. $\frac{5}{6} = \frac{35}{n}$

15. $\frac{1}{x} = \frac{16}{48}$

16. $\frac{c}{7} = \frac{42}{49}$

17. $\frac{6}{8} = \frac{3}{n}$

18. $\frac{10}{d} = \frac{50}{30}$

19. $\frac{28}{16} = \frac{s}{4}$

20. $\frac{9}{t} = \frac{72}{80}$

Express each decimal as a percent.

21. 0.53

22. 0.1

23. 0.91

24. 0.42

25. 0.16

26. 0.7

27. 0.84

28. 0.32

29. 0.27

30. 0.66

Express each fraction as a percent.

31. $\frac{3}{10}$

34. $\frac{15}{16}$

37. $\frac{6}{25}$

40. $\frac{67}{100}$

32. $\frac{4}{5}$

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

38. $\frac{13}{20}$

33. $\frac{3}{8}$

36. $\frac{7}{10}$

39. $\frac{39}{50}$

Write each percent as a decimal.

41. 25%

44. 8%

47. 9%

50. 79%

42. 32%

45. 55%

48. 43%

43. 16%

46. 81%

49. 63%

Solve each problem.

51. Jenny bought a calculator that originally cost \$80 for \$52. What was her percent of savings on the calculator purchase?

52. Eric is buying two round-trip boat tickets to Alaska for \$3,150. The tax on the tickets is 12%. How much is the total cost of the tickets with tax?

53. Amy deposits \$2,300 in a certificate of deposit that pays 8.5% interest compounded annually. How much money will she have in the account after 4 years? Remember, the compound interest formula is $A = P(1 + i)^n$.

54. Steve works part-time at the local video store. On Thursday, he rented out 200 videos. On Friday, he rented out 354 videos. What was the percent of increase in the number of videos he rented out on Friday?

55. Jose works as a reporter for a large newspaper. Last year he worked 240 days out of 250 work days. What percent of the year did he work?

Chapter 7 Supplementary Problems

Find the absolute value or distance from zero.

1. $|6|$

3. $|25|$

5. $|-93|$

2. $|-40|$

4. $|-3|$

Name the opposite of each integer.

6. 15

8. -9

10. -32

7. 21

9. 5

Compare each pair. Use $<$, $>$, or $=$.

11. $6 \blacksquare -6$

13. $5 \blacksquare -10$

15. $-3 \blacksquare |5|$

12. $-2 \blacksquare 0$

14. $15 \blacksquare |-15|$

Find each sum.

16. $8 + 5$

21. $-8 + (-6)$

17. $3 + 7$

22. $-9 + 5$

18. $7 + (-3)$

23. $-3 + (-1)$

19. $-5 + (-4)$

24. $2 + (-7)$

20. $-3 + 3$

25. $-4 + (-4)$

Find each difference.

- 26.** $-4 - (-10)$ **29.** $15 - (-5)$ **32.** $-5 - (-6)$ **35.** $9 - (+4)$
27. $6 - (+3)$ **30.** $-8 - (-6)$ **33.** $-4 - (-8)$
28. $-7 - (-6)$ **31.** $2 - (-3)$ **34.** $-9 - (-7)$

Find each product or quotient.

- 36.** $(4)(6)$ **41.** $(6)(9)$ **46.** $42 \div 7$ **51.** $72 \div 9$
37. $(6)(-3)$ **42.** $(2)(-12)$ **47.** $10 \div (-5)$ **52.** $64 \div (-8)$
38. $(-5)(4)$ **43.** $(-7)(-5)$ **48.** $-48 \div 12$ **53.** $-24 \div -4$
39. $(-7)(-7)$ **44.** $(-4)(8)$ **49.** $-7 \div -7$ **54.** $50 \div (-5)$
40. $(-12)(-4)$ **45.** $(-5)(9)$ **50.** $-150 \div (-50)$ **55.** $-32 \div (-8)$

Solve each problem.

- 56.** Anita can scuba dive 15 feet in a minute. At what depth will she be in 6 minutes?
- 57.** What is the difference between the top of a building, which is 453 feet above ground, and the basement, which is 24 feet below ground?
- 58.** The temperature Wednesday was -10°F . Thursday's temperature was 2°F . How much did the temperature increase?
- 59.** For the first three holes in golf, John scored one point over par (+1), three points under par (-3), and one point under par (-1). What was his score for the first three holes?
- 60.** The top long jump in Phil's gym class was 107 inches. Phil jumped 98 inches. How far was he from the top long jump?

Chapter 8 Supplementary Problems

Rewrite each of the following using exponents.

1. $5 \cdot 5 \cdot 5 \cdot 5 \cdot 5$

2. $8 \cdot 8 \cdot 8$

3. $3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

4. $(-6) \cdot (-6)$

5. $(-8) \cdot (-8) \cdot (-8)$

6. $(-t) \cdot (-t) \cdot (-t) \cdot (-t)$

7. $y \cdot y$

8. $c \cdot c \cdot c \cdot c$

9. $e \cdot e$

10. $(-n) \cdot (-n) \cdot (-n)$

Find the value of each expression.

11. 2^5

13. 35^2

15. 3^4

12. 8^3

14. $(-6)^3$

Simplify each expression.

16. $6^2 \cdot 6^5$

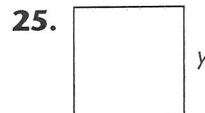
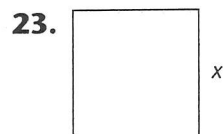
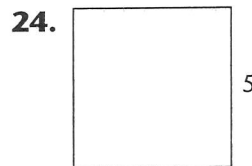
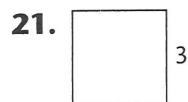
18. $12^5 \cdot 12^2$

20. $7^4 \div 7^2$

17. $8^7 \div 8^3$

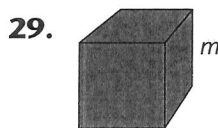
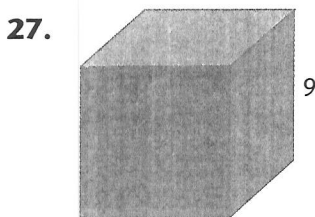
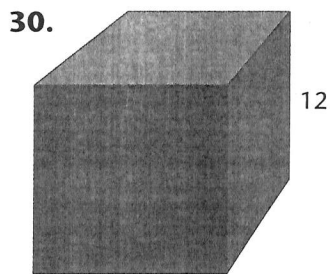
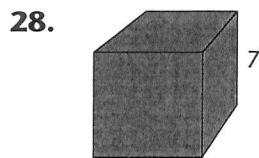
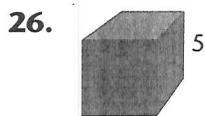
19. $3^9 \div 3^4$

Write an expression for the area of each square. Then find the area.





Write an expression for the volume of each cube. Then find the volume.



Estimate the square root of each number.

31. $\sqrt{10}$

33. $\sqrt{37}$

35. $\sqrt{47}$

32. $\sqrt{56}$

34. $\sqrt{93}$

Find the approximate length of a side of each square. Round to the nearest tenth.

36. Area = 49

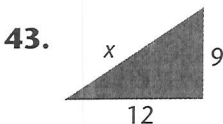
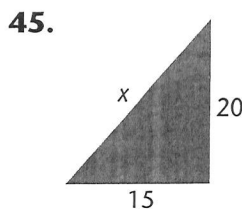
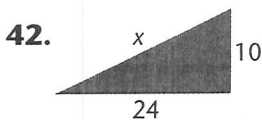
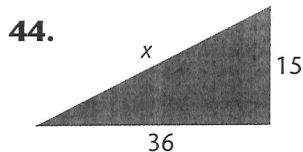
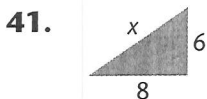
38. Area = 67

40. Area = 2,000

37. Area = 351

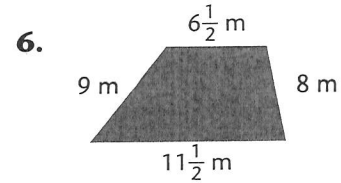
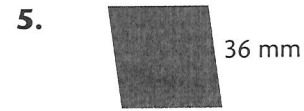
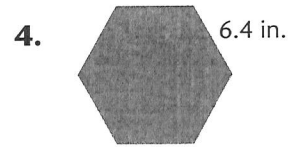
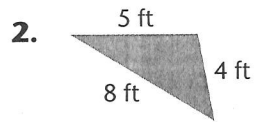
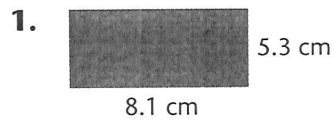
39. Area = 100

Use the Pythagorean theorem to find x .



Chapter 9 Supplementary Problems

Find each perimeter.



The measures of various squares and rectangles are given below.

Find the area of each.

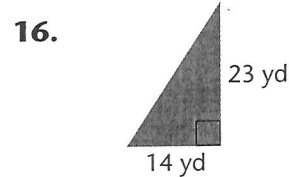
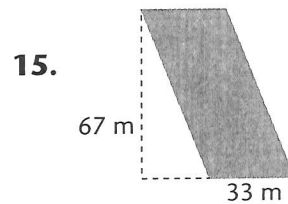
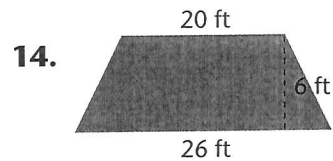
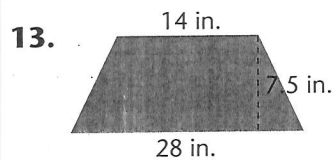
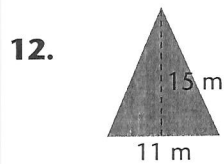
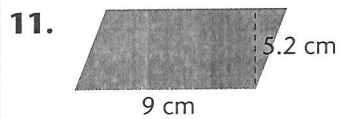
7. Square $NLIP$ with $s = 25$ mm

8. Rectangle $JHGF$ with $l = 8.5$ in.;
 $w = 3$ in.

9. Rectangle $CDEF$ with $l = 9$ cm;
 $w = 12$ cm

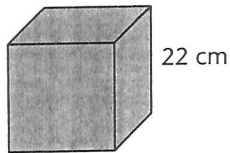
10. Square $ACEG$ with $s = 7.3$ ft

Find the area of each shape.

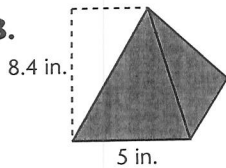


Find the volume of each shape.

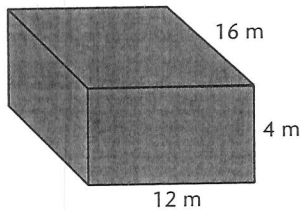
17.



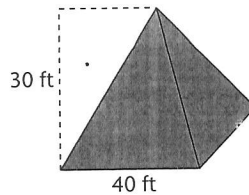
18.



19.



20.



21. Zari mailed a package to her mom that is a cube with sides 23 inches long. What is the volume of the package?

22. Melissa is shipping a model boat in a box that is a rectangular prism. Its length is 43 inches, its width is 18 inches, and its height is 15 inches. What is the volume of the box?

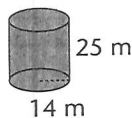
Use 3.14 for π to find the area and circumference.

23. On the outside of city hall in Cookport is a clock face with a 24-inch radius. What is the circumference and area of the clock face?

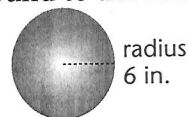
24. A school's logo of a tiger is painted inside a circle on the front door of the building. It has a diameter of 30 cm. What is the circumference and area of the circle?

Use 3.14 for π to find the volume of each figure. Round to the nearest hundredth.

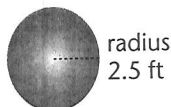
25.



28.

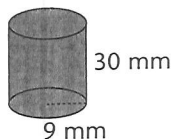


26.



29. Find the volume of a basketball with a radius of 22 cm.

27.



30. As part of the Thanksgiving dinner, Marshall opens a can of cranberries from a cylinder can that is 8 inches high and has a radius of 3 inches. What is the volume of the can?

