Holt California Mathematics

Course 2

Homework and Practice Workbook

HOLT, RINEHART AND WINSTON
A Harcourt Education Company
Orlando • Austin • New York • San Diego • London

Printed in the United States of America

ISBN 978-0-03-094575-5
ISBN 0-03-094575-5

1 2 3 4 5 170 10 09 08 07

CONTENTS

Name _____ Date _____ Class _____

California Standards AF1.2, AF1.4

LESSON 1-1

Practice

Evaluating Algebraic Expressions

Evaluate each expression for the given value of the variable.

1. $6x + 2$ for $x = 3$

2. $18 - a$ for $a = 13$

3. $\frac{1}{4}y$ for $y = 16$

4. $9 - 2b$ for $b = 3$

5. $44 - 12n$ for $n = 3$

6. $7.2 + 8k$ for $k = 2$

7. $20(b - 15)$ for $b = 19$

8. $n(18 - 5)$ for $n = 4$

Evaluate each expression for the given value of the variables.

9. $2x + y$ for $x = 7$ and $y = 11$

10. $4j - k$ for $j = 4$ and $k = 10$

11. $9a - 6b$ for $a = 6$ and $b = 2$

12. $5s + 5t$ for $s = 15$ and $t = 12$

13. $(15 - n)m$ for $m = 7$ and $n = 4$

14. $w(14 - y)$ for $w = 8$ and $y = 5$

If q is the number of quarts of lemonade, then $\frac{1}{4}q$ can be used to find the number of cups of lemonade mix needed to make the lemonade. How much mix is needed to make each amount of lemonade?

15. 2 quarts

16. 8 quarts

17. 12 quarts

18. 18 quarts

19. If m is the number of minutes a taxi ride lasts, then $2 + 0.35m$ can be used to find the cost of a taxi ride with Bill's Taxi Company.

How much will it cost for a 12-min taxi ride? _____

Name _____ Date _____ Class _____

California Standards AF1.1

LESSON 1-2

Practice

Writing Algebraic Expressions

Write an algebraic expression for each word phrase.

1. 6 less than twice x

2. 1 more than the quotient of 21 and b

3. 3 times the sum of b and 5

4. 10 times the difference of d and 3

5. the sum of 11 times s and 3

6. 7 minus the product of 2 and x

Write a word phrase for each algebraic expression.

7. $2n + 4$

8. $3r - 1$

9. $10 - 6n$

10. $7 + \frac{2}{c}$

11. $15x - 12$

12. $\frac{y}{5} + 8$

13. Maddie earns \$8 per hour. Write an algebraic expression to evaluate how much money Maddie will earn if she works for 15, 20, 25, or 30 hours.

n		Earnings
15		
20		
25		
30		

14. Write a word problem that can be evaluated by the algebraic expression $y - 95$, and evaluate it for $y = 125$.

Name _____ Date _____ Class _____

California Standards NS2.5, NS1.1

LESSON 1-3

Practice

Integers and Absolute Value

Compare. Write <, >, or =.

1. −6 ☐ 6 **2.** 12 ☐ 10 **3.** 18 ☐ 5

Write the integers in order from least to greatest.

4. −8, 2, −11 _____

5. −12, −15, 0 _____

6. −24, −17, 30 _____

7. 16, −14, −7 _____

8. −9, −7, −16 _____

9. −19, −23, −10 _____

Simplify each expression.

10. |−17| _____

11. |−35| _____

12. |19| _____

13. |−8| + |−4| _____

14. |−12| + |12| _____

15. |19| + |−8| _____

16. |29 − 16| _____

17. |35 − 9| _____

18. |14 − 14| _____

19. |−15| + |10| _____

20. |−9| + |30| _____

21. |24| + |−8| _____

22. Natalie keeps track of her bowling scores. The scores for the games she played this Saturday relative to her best score last Saturday are Game A, 6; Game B, -3; Game C, 8; and Game D, −5. Use <, >, or = to compare her first two games. Then list her games in order from the lowest score to the highest.

_____

Name _____ Date _____ Class _____

California Standards NS1.2, AF1.3

LESSON 1-4

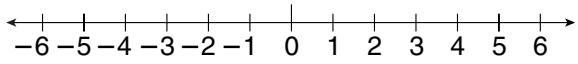
Practice

Adding Integers

Use a number line to find each sum.

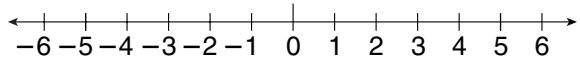
1. 3 + 1

_____



2. −3 + 2

_____



Add.

3. −5 + 18 _____

4. −10 + 17 _____

5. −22 + (−9) _____

6. 24 + (−15) _____

Evaluate each expression for the given value of the variable.

7. $r + 7$ for $r = 3$ _____

8. $m + 5$ for $m = 9$ _____

9. $x + 9$ for $x = 4$ _____

10. $-6 + t$ for $t = -8$ _____

11. $-7 + y$ for $y = -4$ _____

12. $x + 9$ for $x = -8$ _____

13. $-5 + d$ for $d = -2$ _____

14. $x + (-4)$ for $x = -4$ _____

15. $k + (-3)$ for $k = -5$ _____

16. $-8 + b$ for $b = 13$ _____

17. $-10 + d$ for $d = -2$ _____

18. $t + (-3)$ for $t = 3$ _____

19. Joleen has 2560 trading cards in her collection. She buys 165 new cards for the collection. How many trading cards does she have now?

_____

20. The running back for the Bears carries the ball twice in the first quarter. The first run he gained fifteen yards and the second run he lost eight yards. How many yards did the two runs total?

_____

Name _____ Date _____ Class _____

California Standards NS1.2, NS2.5

LESSON 1-5

Practice

Subtracting Integers

Subtract.

1. 8 − 2 _____

2. 10 − 5 _____

3. 7 − 12 _____

4. 16 − 10 _____

5. 3 − 10 _____

6. 16 − 9 _____

7. −4 − 9 _____

8. −8 − 10 _____

9. 33 − 57 _____

10. 16 − 49 _____

11. −114 − 19 _____

12. −88 − (−10) _____

Evaluate each expression for the given value of the variable.

13. $x - 8$ for $x = 10$ _____

14. $w - 10$ for $w = 15$ _____

15. $12 - t$ for $t = -8$ _____

16. $15 - x$ for $x = -12$ _____

17. $w - 20$ for $w = -15$ _____

18. $-15 - x$ for $x = -10$ _____

19. $-9 - x$ for $x = -20$ _____

20. $y - (-10)$ for $y = -10$ _____

21. $x - (-15)$ for $x = -5$ _____

22. $|w - 8| + 6$ for $w = 9$ _____

23. $16 - |t + 8|$ for $t = 10$ _____

24. $|14 - x| - 9$ for $x = 8$ _____

25. The altitude of Mt. Blackburn in Alaska is 16,390 feet. The altitude of Mt. Elbert in Colorado is 14,433 feet. What is the difference in the altitudes of the two mountains?

_____

26. In January, Jesse weighed 230 pounds. By November, he weighed 185 pounds. How much did Jesse's weight change?

_____

Name _____ Date _____ Class _____

California Standards NS1.2

LESSON 1-6

Practice

Multiplying and Dividing Integers

Multiply or divide.

1. $6 \cdot 7$

2. $\frac{-15}{5}$

3. $-7 \cdot 3$

4. $\frac{20}{-4}$

5. $\frac{-36}{-4}$

6. $-8(-9)$

7. $\frac{-48}{-6}$

8. $7(-7)$

9. $5(-8)$

10. $(-6)(-9)$

11. $\frac{-36}{4}$

12. $\frac{42}{-7}$

13. $-9(-3)$

14. $(-4)(8)$

15. $\frac{-54}{-9}$

16. $\frac{-72}{8}$

Simplify.

17. $-5(3 + 7)$

18. $10(8 - 2)$

19. $-4(12 - 3)$

20. $9(15 - 8)$

21. $12(-9 + 4)$

22. $-11(7 - 13)$

23. $15(-12 + 8)$

24. $-10(-8 - 6)$

25. $6(-12 + 1)$

26. $-5(3 - 12)$

27. $-8(-5 - 5)$

28. $7(12 - 3)$

29. $10(-7 - 1)$

30. $12(2 - 5)$

31. $-15(-2 - 1)$

32. $9(8 - 20)$

33. Kristin and her three friends buy a pizza with twelve slices and split it equally. How many slices will each person receive?

_____

34. The temperature was $-1°F$, $-5°F$, $8°F$, and $-6°F$ on four consecutive days. What was the average temperature for those days?

_____

Name _____ Date _____ Class _____

California Standards Preparation for AF4.0; AF1.4

LESSON 1-7

Practice

Solving Equations by Adding or Subtracting

Determine which value is a solution of the equation.

1. $x - 6 = 12$; $x = 6$, 8, or 18

_____

2. $9 + x = 17$; $x = 6$, 8, or 26

_____

3. $x - 12 = 26$; $x = 14$, 38, or 40

_____

4. $x + 18 = 59$; $x = 37$, 41, or 77

_____

Solve.

5. $n - 8 = 11$

_____

6. $9 + g = 13$

_____

7. $y + 6 = 2$

_____

8. $-6 + j = -12$

_____

9. $s - 8 = 11$

_____

10. $-16 + r = -2$

_____

11. $a + 35 = 51$

_____

12. $m - 6 = -13$

_____

13. $d - 12 = -5$

_____

14. $7.5 + c = 10.6$

_____

15. $y - 1.7 = 0.6$

_____

16. $m - 2.25 = 4.50$

_____

17. Two sisters, Jenny and Penny, play on the same basketball team. Last season they scored a combined total of 458 points. Jenny scored 192 of the points. Write and solve an equation to find the number of points Penny scored.

_____

18. After his payment, Mr. Weber's credit card balance was $245.76. His payment was for $75.00. Write and solve an equation to find the amount of his credit card bill.

_____

Name _____ Date _____ Class _____

California Standards Preparation for AF4.0; AF1.3, MG1.3

LESSON 1-8

Practice

Solving Equations by Multiplying or Dividing

Solve and check.

1. $4w = 48$

2. $8y = 56$

3. $-4b = 64$

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

5. $\frac{v}{-6} = -14$

6. $\frac{n}{21} = -3$

7. $5a = -75$

8. $54 = 3q$

9. $23b = 161$

10. $\frac{k}{21} = 15$

11. $\frac{w}{-17} = 17$

12. $11 = \frac{r}{34}$

13. $672 = -24b$

14. $\frac{u}{25} = 13$

15. $42m = -966$

16. Alex scored 13 points in the basketball game. This was $\frac{1}{5}$ of the total points the team scored. Write and solve an equation to determine the total points t the team scored.

17. Jar candles at the Candle Co. cost $4. Nikki spent $92 buying jar candles for party favors. Write and solve an equation to determine how many jar candles c Nikki bought at the Candle Co.

Name _____ Date _____ Class _____

California Standards AF4.1, AF1.1

LESSON 1-9

Practice

Solving Two-Step Equations

Solve. Check each answer.

1. $5g + 9 = 24$

2. $-6w - 3 = 9$

3. $2d - 16 = 12$

4. $7t - 3 = 11$

5. $4n + 1 = 13$

6. $3k - 15 = 6$

Solve.

7. $\frac{y}{6} - 7 = 2$

8. $\frac{m}{2} + 8 = 5$

9. $1 + \frac{s}{5} = 8$

10. $-3 + \frac{b}{7} = -6$

11. $6 + \frac{x}{3} = 13$

12. $\frac{f}{5} - 9 = -7$

13. $-4 + \frac{v}{2} = 5$

14. $\frac{a}{7} + 1 = 9$

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

16. Two years of local phone service costs $883, including the installation fee of $55. What is the monthly fee?

Name _____ Date _____ Class _____

California Standards NS1.5; NS1.3

LESSON 2-1

Practice

Rational Numbers

Write each fraction as a decimal.

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

2. $\frac{8}{3}$ _____

3. $\frac{14}{15}$ _____

4. $\frac{16}{5}$ _____

5. $\frac{11}{16}$ _____

6. $\frac{7}{9}$ _____

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

8. $\frac{31}{25}$ _____

Write each decimal as a fraction in simplest form.

9. 0.72 _____

10. 0.058 _____

11. −1.65 _____

12. 2.1 _____

13. 0.036 _____

14. −4.06 _____

15. 2.305 _____

16. 0.0064 _____

17. −0.60 _____

18. 6.95 _____

19. 0.016 _____

20. 0.0005 _____

Write each repeating decimal as a fraction in simplest form.

21. $0.\overline{8}$ _____

22. $0.\overline{84}$ _____

23. $0.\overline{841}$ _____

24. $0.\overline{4}$ _____

25. $0.\overline{28}$ _____

26. $0.\overline{2}$ _____

27. $0.\overline{54}$ _____

28. $0.\overline{774}$ _____

29. Make up a fraction that cannot be simplified that has 24 as its denominator.

_____

Name _____ Date _____ Class _____

California Standards NS1.1, NS1.3

LESSON 2-2

Practice

Comparing and Ordering Rational Numbers

Compare. Write <, >, or =.

1. $\frac{1}{8} \square \frac{1}{10}$

2. $\frac{3}{5} \square \frac{7}{10}$

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

4. $\frac{5}{6} \square \frac{3}{4}$

5. $-\frac{2}{7} \square -\frac{1}{2}$

6. $1\frac{2}{9} \square 1\frac{2}{3}$

7. $-\frac{8}{9} \square -\frac{3}{10}$

8. $-\frac{4}{5} \square -\frac{8}{10}$

9. $0.08 \square \frac{3}{10}$

10. $\frac{11}{15} \square 0.7\overline{3}$

11. $2\frac{4}{9} \square 2\frac{3}{4}$

12. $-\frac{5}{8} \square -0.58$

13. $3\frac{1}{4} \square 3.3$

14. $-\frac{1}{6} \square -\frac{1}{9}$

15. $0.75 \square \frac{3}{4}$

16. $-2\frac{1}{8} \square -2.1$

17. $1\frac{1}{2} \square 1.456$

18. $-\frac{3}{5} \square -0.6$

19. On Monday, Gina ran 1 mile in 9.3 minutes. Her times for running 1 mile on each of the next four days, relative to her time on Monday, were $-1\frac{2}{3}$ minutes, -1.45 minutes, -1.8 minutes, and $-1\frac{3}{8}$ minutes. List these relative times in order from least to greatest.

_____

20. Trail A is 3.1 miles long. Trail C is $3\frac{1}{4}$ miles long. Trail B is longer than Trail A but shorter than Trail C. What is a reasonable distance for the length of Trail B?

_____

Name _____ Date _____ Class _____

California Standards NS1.2

LESSON 2-3

Practice

Adding and Subtracting Rational Numbers

1. 47.8 + 25.37

_____

2. 60.15 − 3.8

_____

3. Gretchen bought a sweater for $23.89. In addition, she had to pay $1.43 in sales tax. She gave the sales clerk $30. How much change did Gretchen receive from her total purchase?

_____

4. Jacob is replacing the molding around two sides of a picture frame. The measurements of the sides of the frame are $4\frac{3}{16}$ in. and $2\frac{5}{16}$ in. What length of molding will Jacob need?

_____

Add or subtract. Simplify.

5. $\frac{3}{8} + \frac{1}{8}$ _____

6. $-\frac{1}{10} + \frac{7}{10}$ _____

7. $\frac{5}{14} - \frac{3}{14}$ _____

8. $\frac{4}{15} + \frac{7}{15}$ _____

9. $\frac{5}{18} - \frac{7}{18}$ _____

10. $-\frac{8}{17} - \frac{2}{17}$ _____

11. $-\frac{1}{16} + \frac{5}{16}$ _____

12. $\frac{3}{20} + \frac{1}{20}$ _____

Evaluate each expression for the given value of the variable.

13. 38.1 + x for $x = -6.1$ _____

14. 18.7 + x for $x = 8.5$ _____

15. $\frac{8}{15} + x$ for $x = -\frac{4}{15}$ _____

16. $\frac{13}{20} + x$ for $x = \frac{4}{20}$ _____

17. 21.6 + x for $x = -11.2$ _____

18. $\frac{8}{13} + x$ for $x = \frac{2}{13}$ _____

Name _____ Date _____ Class _____

California Standards NS1.2

LESSON 2-4

Practice

Multiplying Rational Numbers

Multiply. Write each answer in simplest form.

1. $\frac{14}{8}\left(\frac{17}{21}\right)$ _____

2. $-\frac{12}{20}\left(\frac{9}{18}\right)$ _____

3. $-\frac{12}{30}\left(-\frac{42}{72}\right)$ _____

4. $-\frac{13}{35}\left(-\frac{5}{26}\right)$ _____

5. $-\frac{5}{18}\left(\frac{8}{15}\right)$ _____

6. $\frac{7}{12}\left(\frac{14}{21}\right)$ _____

7. $-\frac{1}{9}\left(\frac{27}{24}\right)$ _____

8. $-\frac{1}{11}\left(-\frac{3}{2}\right)$ _____

9. $\frac{7}{20}\left(-\frac{15}{28}\right)$ _____

10. $\frac{16}{25}\left(-\frac{18}{32}\right)$ _____

11. $\frac{1}{9}\left(-\frac{18}{17}\right)$ _____

12. $\frac{17}{20}\left(-\frac{12}{34}\right)$ _____

13. $-4\left(2\frac{1}{6}\right)$ _____

14. $\frac{3}{4}\left(1\frac{3}{8}\right)$ _____

15. $3\frac{1}{5}\left(\frac{2}{3}\right)$ _____

16. $-\frac{5}{6}\left(2\frac{1}{2}\right)$ _____

Multiply.

17. $-2(-5.2)$ _____

18. $0.53(0.04)$ _____

19. $(-7)(-3.9)$ _____

20. $-2(8.13)$ _____

21. $0.02(-4.62)$ _____

22. $0.5(-7.8)$ _____

23. $(-0.41)(-8.5)$ _____

24. $(-8)(6.3)$ _____

25. $15(-0.05)$ _____

26. $(-3.04)(-1.7)$ _____

27. $10(-0.09)$ _____

28. $(-0.8)(-0.15)$ _____

29. Travis painted for $6\frac{2}{3}$ hours. He received \$27 an hour for his work. How much was Travis paid for doing this painting job?

_____

Name _____ Date _____ Class _____

California Standards NS1.2, AF1.3

LESSON 2-5

Practice

Dividing Rational Numbers

Divide. Write each answer in simplest form.

1. $\frac{1}{5} \div \frac{3}{10}$ _____

2. $-\frac{5}{8} \div \frac{3}{4}$ _____

3. $\frac{1}{4} \div \frac{1}{8}$ _____

4. $-\frac{2}{3} \div \frac{4}{15}$ _____

5. $1\frac{2}{9} \div 1\frac{2}{3}$ _____

6. $-\frac{7}{10} \div \left(\frac{2}{5}\right)$ _____

7. $\frac{6}{11} \div \frac{3}{22}$ _____

8. $\frac{4}{9} \div \left(-\frac{8}{15}\right)$ _____

9. $\frac{3}{8} \div -15$ _____

10. $-\frac{5}{6} \div 12$ _____

11. $6\frac{1}{2} \div 1\frac{5}{8}$ _____

12. $-\frac{9}{10} \div 6$ _____

Divide.

13. $24.35 \div 0.5$ _____

14. $2.16 \div 0.04$ _____

15. $3.16 \div 0.02$ _____

16. $7.32 \div 0.3$ _____

17. $87.36 \div 0.6$ _____

18. $79.36 \div 0.8$ _____

19. $4.27 \div 0.007$ _____

20. $63.81 \div 0.9$ _____

21. $1.23 \div 0.003$ _____

22. $62.46 \div 0.09$ _____

23. $21.12 \div 0.4$ _____

24. $82.68 \div 0.06$ _____

Evaluate each expression for the given value of the variable.

25. $\frac{18}{x}$ for $x = 0.12$ _____

26. $\frac{10.8}{x}$ for $x = 0.03$ _____

27. $\frac{9.18}{x}$ for $x = -1.2$ _____

28. A can of fruit contains $3\frac{1}{2}$ cups of fruit. The suggested serving size is $\frac{1}{2}$ cup. How many servings are in the can of fruit?

_____

Name _____ Date _____ Class _____

California Standards NS1.2, NS2.2

LESSON 2-6

Practice

Adding and Subtracting with Unlike Denominators

Add or subtract.

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

2. $\frac{3}{5} + \frac{1}{3}$ _____

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

4. $\frac{1}{2} - \frac{5}{9}$ _____

5. $\frac{5}{16} - \frac{5}{8}$ _____

6. $\frac{7}{9} + \frac{5}{6}$ _____

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

8. $\frac{5}{6} - \frac{3}{8}$ _____

9. $2\frac{7}{8} + 3\frac{5}{12}$ _____

10. $1\frac{2}{9} + 2\frac{1}{18}$ _____

11. $3\frac{2}{3} - 1\frac{3}{5}$ _____

12. $1\frac{5}{6} + (-2\frac{3}{4})$ _____

13. $\frac{5}{72} + \frac{68}{90}$ _____

14. $\frac{81}{140} - \frac{67}{105}$ _____

15. $\frac{11}{45} + \frac{21}{96}$ _____

16. $\frac{56}{70} - \frac{107}{198}$ _____

Evaluate each expression for the given value of the variable.

17. $2\frac{3}{8} + x$ for $x = 1\frac{5}{6}$ _____

18. $x - \frac{2}{5}$ for $x = \frac{1}{3}$ _____

19. $x - \frac{3}{10}$ for $x = \frac{3}{7}$ _____

20. $1\frac{5}{8} + x$ for $x = -2\frac{1}{6}$ _____

21. $x - \frac{3}{4}$ for $x = \frac{1}{6}$ _____

22. $x - \frac{3}{10}$ for $x = \frac{1}{2}$ _____

23. Ana worked $6\frac{1}{2}$ h on Monday, $5\frac{3}{4}$ h on Tuesday and $7\frac{1}{6}$ h on Friday. How many total hours did she work these three days?

_____

Name _____ Date _____ Class _____

California Standards AF4.0

LESSON 2-7

Practice

One-Step Equations with Rational Numbers

Solve.

1. $x + 6.8 = 12.19$

2. $y - 10.24 = 5.3$

3. $0.05w = 6.25$

4. $\frac{a}{9.05} = 8.2$

5. $-12.41 + x = -0.06$

6. $\frac{d}{-8.4} = -10.2$

7. $-2.89 = 1.7m$

8. $n - 8.09 = -11.65$

9. $\frac{x}{5.4} = -7.18$

10. $\frac{7}{9} + x = 1\frac{1}{9}$

11. $\frac{6}{11}y = -\frac{18}{22}$

12. $\frac{7}{10}d = \frac{21}{20}$

13. $x - \left(-\frac{9}{14}\right) = \frac{5}{7}$

14. $x - \frac{15}{21} = 2\frac{6}{7}$

15. $-\frac{8}{15}a = \frac{9}{10}$

16. A recipe calls for $2\frac{1}{3}$ cups of flour and $1\frac{1}{4}$ cups of sugar. If the recipe is tripled, how much flour and sugar will be needed?

17. Daniel filled the gas tank in his car with 14.6 gal of gas. He then drove 284.7 mi before needing to fill up his tank with gas again. How many miles did the car get to a gallon of gasoline?

Name _____ Date _____ Class _____

California Standards AF4.1

LESSON 2-8

Practice

Two-Step Equations with Rational Numbers

Write and solve a two-step equation to answer the following questions.

1. The school purchased baseball equipment and uniforms for a total cost of $1762. The equipment costs $598 and the uniforms were $24.25 each. How many uniforms did the school purchase?

2. Carla runs 4 miles every day. She jogs from home to the school track, which is $\frac{3}{4}$ mile away. She then runs laps around the $\frac{1}{4}$-mile track. Carla then jogs home. How many laps does she run at the school?

Solve.

3. $\frac{a}{3} + \frac{5}{3} = 6$

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

5. $\frac{y}{6} - \frac{2}{3} = -3$

6. $\frac{k}{8} + \frac{1}{4} = \frac{7}{4}$

7. $0.5x - 6 = -4$

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

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

10. $2a - 7 = -9$

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

12. $-7.8 = 4.4 + 2r$

13. $\frac{4w}{3} - \frac{5}{6} = -2$

14. $1.3 - 5r = 7.4$

15. A phone call costs $0.58 for the first 3 minutes and $0.15 for each additional minute. If the total charge for the call was $4.78, how many minutes was the call?

16. Seventeen less than four times a number is twenty-seven. Find the number.

Name _____ Date _____ Class _____

California Standards AF1.3

LESSON 3-1

Practice

Properties of Rational Numbers

Name the property that is illustrated in each equation.

1. $16 + \frac{1}{3} = \frac{1}{3} + 16$

_____

2. $4 \cdot (3 \cdot p) = (4 \cdot 3) \cdot p$

_____

3. $(11 + m) + 9 = 11 + (m + 9)$

_____

4. $6 \cdot 1.5 = 1.5 \cdot 6$

_____

Simplify each expression. Write a reason for each step.

5. $38 + 19 + 2$

$38 + 19 + 2 =$ _____ Reason: _____

$=$ _____ Reason: _____

$=$ _____ Reason: _____

$=$ _____ Reason: _____

6. $\frac{1}{3} \cdot 8 \cdot 18$

$\frac{1}{3} \cdot 8 \cdot 18 =$ _____ Reason: _____

$=$ _____ Reason: _____

$=$ _____ Reason: _____

$=$ _____ Reason: _____

Write each product using the Distributive Property. Then simplify.

7. $7(31)$

$7(31) =$ _____

$=$ _____

$=$ _____

$=$ _____

8. $5(28)$

$5(28) =$ _____

$=$ _____

$=$ _____

$=$ _____

Name _____ Date _____ Class _____

California Standards AF1.3

LESSON 3-2

Practice

Simplifying Algebraic Expressions

Combine like terms.

1. $8a - 5a$ _____

2. $12g + 7g$ _____

3. $4a + 7a + 6$ _____

4. $6x + 3y + 5x$ _____

5. $10k - 3k + 5h$ _____

6. $3p - 7q + 14p$ _____

7. $3k + 7k + 5k$ _____

8. $5c + 12d - 6$ _____

9. $13 + 4b + 6b - 5$ _____

10. $4f + 6 + 7f - 2$ _____

11. $x + y + 3x + 7y$ _____

12. $9n + 13 - 8n - 6$ _____

Simplify.

13. $4(x + 3) - 5$ _____

14. $6(7 + x) + 5x$ _____

15. $3(5 + 3x) - 4x$ _____

16. Gregg has q quarters and p pennies. His brother has 4 times as many quarters and 8 times as many pennies as Gregg has. Write the sum of the number of coins they have, and then combine like terms.

_____

17. If Gregg has 6 quarters and 15 pennies, how many total coins do Gregg and his brother have?

_____

Name _____ Date _____ Class _____

California Standards Extension of AF4.1

LESSON 3-3

Practice

Solving Multi-Step Equations

Solve.

1. $2x + 5x + 4 = 25$

2. $9 + 3y - 2y = 14$

3. $16 = 4w + 2w - 2$

4. $26 = 3b - 2 - 7b$

5. $31 + 4t - t = 40$

6. $14 - 2x + 4x = 20$

7. $\frac{5m}{8} - \frac{6}{8} + \frac{3m}{8} = \frac{2}{8}$

8. $-4\frac{2}{3} = \frac{2n}{3} + \frac{1}{3} + \frac{n}{3}$

9. $7a + 16 - 3a = -4$

10. $\frac{x}{2} + 1 + \frac{3x}{4} = -9$

11. $7m + 3 - 4m = -9$

12. $\frac{2x}{5} + 3 - \frac{4x}{5} = \frac{1}{5}$

13. $\frac{7k}{8} - \frac{3}{4} - \frac{5k}{16} = \frac{3}{8}$

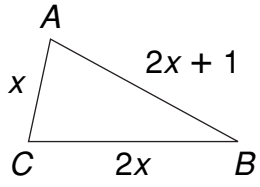
14. $6y + 9 - 4y = -3$

15. $\frac{5a}{6} - \frac{7}{12} + \frac{3a}{4} = -2\frac{1}{6}$

16. The measure of an angle is 28° greater than its complement. Find the measure of each angle.

17. The measure of an angle is 21° more than twice its supplement. Find the measure of each angle.

18. The perimeter of the triangle is 126 units. Find the measure of each side.



19. The base angles of an isosceles triangle are congruent. If the measure of each of the base angles is twice the measure of the third angle, find the measure of all three angles.

Name _____ Date _____ Class _____

California Standards AF1.1, Extension of AF4.1

LESSON 3-4

Practice

Solving Equations with Variables on Both Sides

Solve.

1. $7x - 11 = -19 + 3x$ _____

2. $11a + 9 = 4a + 30$ _____

3. $4t + 14 = \frac{6t}{5} + 7$ _____

4. $19c + 31 = 26c - 74$ _____

5. $\frac{3y}{8} - 9 = 13 + \frac{y}{8}$ _____

6. $\frac{3k}{5} + 44 = \frac{12k}{25} + 8$ _____

7. $10a - 37 = 6a + 51$ _____

8. $5w + 9.9 = 4.8 + 8w$ _____

9. $15 - x = 2(x + 3)$ _____

10. $15y + 14 = 2(5y + 6)$ _____

11. $14 - \frac{w}{8} = \frac{3w}{4} - 21$ _____

12. $\frac{1}{2}(6x - 4) = 4x - 9$ _____

13. $4(3d - 2) = 8d - 5$ _____

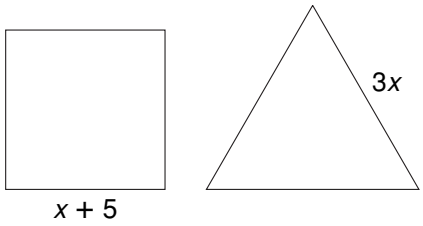
14. $\frac{y}{3} + 11 = \frac{y}{2} - 3$ _____

15. $\frac{2x - 9}{3} = 8 - 3x$ _____

16. Forty-eight decreased by a number is the same as the difference of four times the number and seven. Find the number. _____

17. The square and the equilateral triangle at the right have the same perimeter. Find the length of the sides of the triangle.

_____



Name _____ Date _____ Class _____

California Standards AF1.1

LESSON 3-5

Practice

Inequalities

Write an inequality for each situation.

1. There are no more than 7 peaches in the bowl. _____

2. The aquarium contains more than 20 fish. _____

3. The length of the branch is at most 11 inches. _____

4. Mike has at least 6 pencils in his backpack. _____

Write an inequality for each statement.

5. A number s increased by 3 is at least 19. _____

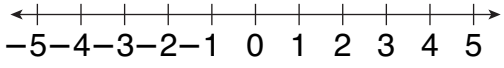
6. A number m decreased by 10 is less than 25. _____

7. Twice a number y is no more than 12. _____

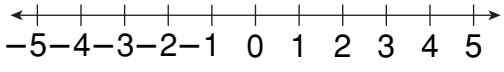
8. The sum of 4 and a number p is greater than 9. _____

Graph each inequality.

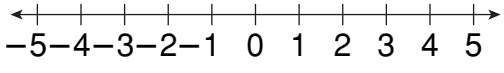
9. $x \geq -3$



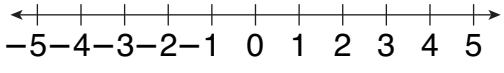
10. $n < 4$



11. $g \leq -2$



12. $y > \frac{1}{2}$



Write a compound inequality for each statement.

13. A number x is either less than 8 or greater than 15. _____

14. A number t is greater than -4 and less than or equal to -1. _____

15. A number m is greater than or equal to 0 and less than 6.1. _____

Name _____ Date _____ Class _____

California Standards AF4.0

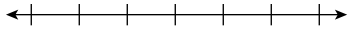
LESSON 3-6

Practice

Solving Inequalities by Adding or Subtracting

Solve and graph each inequality.

1. $x + 4 > 9$



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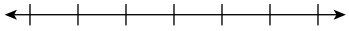
2. $c - 6 \leq 1$



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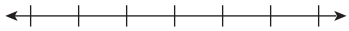
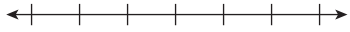
3. $y + 3 \geq -8$



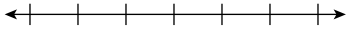
_____

4. $3 + v < -5$



_____

5. $7 + x \leq 10$



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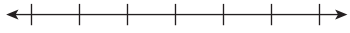
6. $s - 4 < -10$



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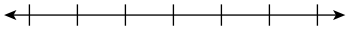
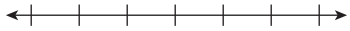
7. $b - 2 \leq 5$



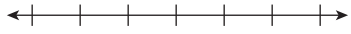
_____

8. $7 + n > -2$



_____

9. $r + 6 \geq -1$

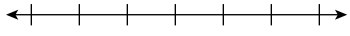


_____

10. $-9 + w < -15$

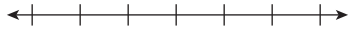
_____

11. $14 + k > 25$



_____

12. $a - 8 \geq -12$

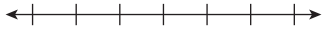


_____

13. $k + 3\frac{1}{2} \leq 0$

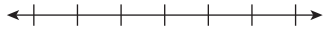
_____

14. $n + 7\frac{1}{2} \geq 12$



_____

15. $-1\frac{2}{3} + b \leq -1$



_____

16. Charlotte needs to collect at least 5,000 signatures for her petition. She has already collected 3,187 signatures. Write and solve an equation to determine how many more signatures Charlotte needs.

_____

Name _____ Date _____ Class _____

California Standards AF1.1, AF4.0

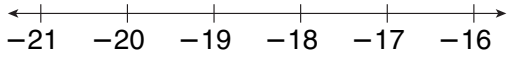
LESSON 3-7

Practice

Solving Inequalities by Multiplying or Dividing

Solve and graph.

1. $\frac{m}{-5} \leq 4$

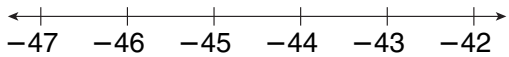


2. $-16 < -8n$

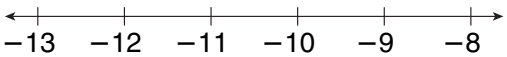
3. $7p \geq 49$

4. $10 > \frac{q}{2}$

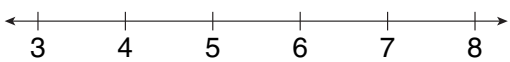
5. $-\frac{r}{3} \leq 15$



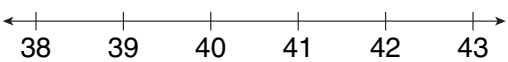
6. $22 > -2s$



7. $-6t < -24$



8. $\frac{v}{20} \geq 2$



9. On a snorkeling trip, Antonia dove at least 7 times as deep as Lucy did. If Antonia dove 35 feet below the ocean's surface, what was the deepest that Lucy dove?

_____

10. Last week, Saul ran more than one-fifth the distance that his friend Omar ran. If Saul ran 14 miles last week, how far did Omar run?

_____

Name _____ Date _____ Class _____

California Standards AF4.1

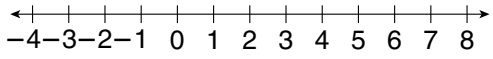
LESSON 3-8

Practice

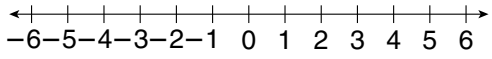
Solving Two-Step Inequalities

Solve and graph.

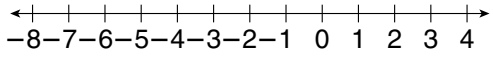
1. $4x - 2 < 26$



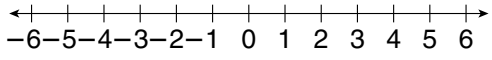
2. $6 - \frac{1}{5}y \leq 7$



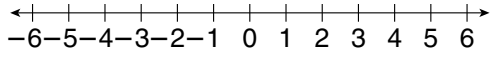
3. $2x + 27 \geq 15$



4. $10x > 14x + 8$

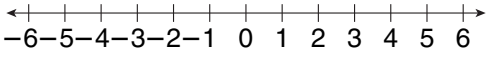


5. $7 - 4w \leq 19$



6. $\frac{k}{5} + \frac{3}{20} < \frac{3}{10}$

7. $4.8 - 9.6x \leq 14.4$



8. $\frac{2}{9} + \frac{y}{3} > \frac{1}{3}$

9. One-third of a number, decreased by thirty-six, is at most twenty-two. Find the number.

_____

10. Jack wants to run at least 275 miles before the baseball season begins. He has already run 25 miles. He plans to run 2.5 miles each day. At this rate, what is the fewest number of days he will need to reach his goal?

_____

Name _____ Date _____ Class _____

California Standards AF2.1, AF1.2

LESSON 4-1

Practice

Exponents

Write in exponential form.

1. $6 \cdot 6 \cdot 6 \cdot 6 \cdot 6 \cdot 6$

_____

2. $7 \cdot 7 \cdot 7 \cdot 7$

_____

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

_____

4. $5 \cdot 5 \cdot 5 \cdot b \cdot b \cdot b \cdot b$

_____

Simplify.

5. 10^2

_____

6. $(-6)^2$

_____

7. $\left(\frac{1}{8}\right)^2$

_____

8. $(-7)^2$

_____

9. $(-5)^3$

_____

10. 12^2

_____

11. $(-9)^2$

_____

12. $(-4)^3$

_____

13. 2^5

_____

14. 5^4

_____

15. $(-3)^4$

_____

16. $\left(\frac{1}{6}\right)^3$

_____

Simplify each expression for the given values of the variables.

17. $n^3 - 5$ for $n = 4$

_____

18. $4x^2 + y^3$ for x = 5 and $y = -2$

_____

19. $m^p + q^2$ for $m = 5$, $p = 2$, and $q = 4$

_____

20. $a^4 + 2(b - c^2)$ for $a = 2$, $b = 4$, and $c = -1$

_____

21. Write an expression for five times a number used as a factor three times.

_____

22. Find the volume of a regular cube if the length of a side is 10 cm. (Hint: $V = l^3$.)

_____

Name _____ Date _____ Class _____

California Standards NS2.1, AF2.1

LESSON 4-2

Practice

Integer Exponents

Simplify the powers of 10.

1. 10^{-3} _____

2. 10^{3} _____

3. 10^{-5} _____

4. 10^{-2} _____

5. 10^{0} _____

6. 10^{4} _____

7. 10^{1} _____

8. 10^{5} _____

Simplify.

9. $(-6)^{-2}$ _____

10. $(-9)^{-3}$ _____

11. 2^{-5} _____

12. $(-3)^{-4}$ _____

13. $(-12)^{-1}$ _____

14. 6^{-3} _____

15. $10 - (3 + 2)^{0} + 2^{-1}$ _____

16. $15 + (-6)^{0} - 3^{-2}$ _____

17. $6(8 - 2)^{0} + 4^{-2}$ _____

18. $2^{-2} + (-4)^{-1}$ _____

19. $3(1 - 4)^{-2} + 9^{-1} + 12^{0}$ _____

20. $9^{0} + 64(3 + 5)^{-2}$ _____

21. One milliliter equals 10^{-3} liter. Evaluate 10^{-3}.

_____

22. The volume of a cube is 10^{6} cubic feet. Evaluate 10^{6}.

_____

Name _____ Date _____ Class _____

California Standards NS2.1, NS2.3

LESSON 4-3

Practice

Properties of Exponents

Simplify each expression. Write your answer in exponential form.

1. $10^5 \cdot 10^7$ _____

2. $x^9 \cdot x^8$ _____

3. $14^7 \cdot 14^9$ _____

4. $12^6 \cdot 12^8$ _____

5. $y^{12} \cdot y^{10}$ _____

6. $15^9 \cdot 15^{14}$ _____

7. $(-11)^{20} \cdot (-11)^{10}$ _____

8. $(-a)^6 \cdot (-a)^7$ _____

9. $\frac{12^9}{12^2}$ _____

10. $\frac{(-11)^{12}}{(-11)^8}$ _____

11. $\frac{x^{10}}{x^5}$ _____

12. $\frac{16^{10}}{16^2}$ _____

13. $\frac{17^{19}}{17^2}$ _____

14. $\frac{14^{15}}{14^{13}}$ _____

15. $\frac{23^{17}}{23^9}$ _____

16. $\frac{(-a)^{12}}{(-a)^7}$ _____

17. $(6^2)^4$ _____

18. $(2^4)^{-3}$ _____

19. $(-3^5)^{-1}$ _____

20. $(y^5)^2$ _____

21. $(9^{-2})^3$ _____

22. $(10^0)^3$ _____

23. $(x^4)^{-2}$ _____

24. $(5^{-2})^0$ _____

Write the product or quotient as one power.

25. $\frac{w^{12}}{w^3}$ _____

26. $d^8 \cdot d^5$ _____

27. $(-15)^5 \cdot (-15)^{10}$ _____

28. Jefferson High School has a student body of 6^4 students. Each class has approximately 6^2 students. How many classes does the school have? Write the answer as one power.

_____

29. Write the expression for a number used as a factor fifteen times being multiplied by a number used as a factor ten times. Then, write the product as one power.

_____

Name _____ Date _____ Class _____

California Standards AF2.2, AF1.3

LESSON 4-4

Practice

Multiplying and Dividing Monomials

Multiply.

1. $(3c^5)(12c^3)$

2. $(2m^{10})(8m^3)$

3. $(4r^3s^2)(6rs^2)$

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

5. $(2p^2q)(-6pq)$

6. $(x^4)(4x^3y)$

Divide. Assume no denominator equals zero.

7. $\frac{24x^7}{3x^5}$

8. $\frac{50c^9}{5c^8}$

9. $\frac{12m^2n^5}{3mn^2}$

10. $\frac{-16x^8y^2}{4x^2y}$

11. $\frac{18p^6q}{-3pq}$

12. $\frac{60b^2c^4}{12c^4}$

Simplify.

13. $(5n^3)^2$

14. $(-2c^3)^3$

15. $(3a^2b)^2$

A triangle has a base of $4mn$ inches and a height of $5m^2n$ inches.

16. The area of a triangle is one-half the product of its base and height. Write and simplify an expression for the area of the triangle.

17. Find the area of the triangle when $m = 2$ and $n = 1$.

Name _____ Date _____ Class _____

California Standards NS1.1

LESSON 4-5

Practice

Scientific Notation

Multiply.

1. $115.8 \cdot 10^5$ _____

2. $1{,}316 \cdot 10^2$ _____

3. $21.85 \cdot 10^{-4}$ _____

Write each number in scientific notation.

4. 75,000,000 _____

5. 208 _____

6. 907,100 _____

7. 56 _____

8. 0.093 _____

9. 0.00006 _____

10. 0.00852 _____

11. 0.0505 _____

12. 0.003007 _____

Write each number in standard form.

13. 2.54×10^2 _____

14. 6.7×10^{-2} _____

15. 1.14×10^3 _____

16. 3.8×10^{-1} _____

17. 7.53×10^{-3} _____

18. 5.6×10^4 _____

19. 9.1×10^5 _____

20. 6.08×10^{-4} _____

21. 8.59×10^5 _____

22. 3.331×10^6 _____

23. 7.21×10^{-3} _____

24. 5.88×10^{-4} _____

25. Jupiter is about 778,120,000 kilometers from the Sun. Write this number in scientific notation.

_____

26. The *E. coli* bacterium is about 5×10^{-7} meters wide. A hair is about 1.7×10^{-5} meters wide. Which is wider, the bacterium or the hair?

_____

Name _____ Date _____ Class _____

California Standards NS2.4, AF2.2

LESSON 4-6

Practice

Squares and Square Roots

Find the two square roots of each number.

1. 36 _____

2. 81 _____

3. 49 _____

4. 100 _____

5. 64 _____

6. 121 _____

7. 25 _____

8. 144 _____

Simplify each expression.

9. $\sqrt{81m^{10}}$ _____

10. $\sqrt{121d^{16}}$ _____

11. $\sqrt{49k^{6}}$ _____

12. $\sqrt{9r^{8}}$ _____

13. $\sqrt{144s^{12}}$ _____

14. $\sqrt{100p^{4}}$ _____

15. $\sqrt{y^{22}}$ _____

16. $\sqrt{r^{36}}$ _____

17. $\sqrt{169s^{18}}$ _____

18. $\sqrt{144f^{14}}$ _____

19. $\sqrt{36n^{6}}$ _____

20. $\sqrt{49h^{14}}$ _____

The Pyramids of Egypt are often called the first wonder of the world. This group of pyramids consists of Menkaura, Khufu, and Khafra. The largest of these is Khufu, sometimes called Cheops. During this time in history, each monarch had his own pyramid built to bury his mummified body. Cheops was a king of Egypt in the early 26th century B.C. His pyramid's original height is estimated to have been 482 ft. It is now approximately 450 ft. The estimated completion date of this structure was 2660 B.C.

21. If the area of the base of Cheops' pyramid is 570,025 ft^2, what is the length of one of the sides of the ancient structure? (Hint: $s = \sqrt{A}$)

_____

22. If a replica of the pyramid were built with a base area of 625 in^2, what would be the length of each side? (Hint: $s = \sqrt{A}$)

_____

Name _____ Date _____ Class _____

California Standards NS2.4

LESSON 4-7

Practice

Estimating Square Roots

Each square root is between two integers. Name the integers. Explain your answer.

1. $\sqrt{6}$

_____

2. $\sqrt{20}$

_____

3. $\sqrt{28}$

_____

4. $\sqrt{44}$

_____

Approximate each square root to the nearest hundredth.

5. $\sqrt{130}$

_____

6. $\sqrt{255}$

_____

7. $\sqrt{208}$

_____

Use a calculator to find each value. Round to the nearest tenth.

8. $\sqrt{14}$

_____

9. $\sqrt{42}$

_____

10. $\sqrt{21}$

_____

11. $\sqrt{47}$

_____

12. $\sqrt{58}$

_____

13. $\sqrt{60}$

_____

14. $\sqrt{35}$

_____

15. $\sqrt{75}$

_____

Police use the formula $r = 2\sqrt{5L}$ to approximate the rate of speed in miles per hours of a vehicle from its skid marks, where L is the length of the skid marks in feet.

16. About how fast is a car going that leaves skid marks of 80 ft?

_____

17. About how fast is a car going that leaves skid marks of 245 ft?

_____

18. If the formula for finding the length of the skid marks is $L = \frac{r^2}{20}$, what would be the length of the skid marks from a vehicle traveling 80 mi/h?

_____

Name _____ Date _____ Class _____

California Standards NS1.4

LESSON 4-8

Practice

The Real Numbers

Write all classifications that apply to each number.

1. $-\frac{7}{8}$ _____ _____

2. $\sqrt{0.15}$ _____ _____

3. $\sqrt{\frac{18}{2}}$ _____ _____

4. $\sqrt{45}$ _____ _____

5. -25 _____ _____

6. -6.75 _____ _____

State if the number is rational, irrational, or not a real number.

7. $\sqrt{14}$ _____

8. $-\sqrt{16}$ _____

9. $\frac{6.2}{0}$ _____

10. $\sqrt{49}$ _____

11. $\frac{7}{20}$ _____

12. $-\sqrt{81}$ _____

13. $\sqrt{\frac{7}{9}}$ _____

14. -1.3 _____

Find a real number between each pair of numbers.

15. $7\frac{3}{5}$ and $7\frac{4}{5}$ _____

16. 6.45 and $\frac{13}{2}$ _____

17. $\frac{7}{8}$ and $\frac{9}{10}$ _____

18. Give an example of a rational number between $-\sqrt{4}$ and $\sqrt{4}$

_____

19. Give an example of an irrational number less than 0.

_____

20. Give an example of a number that is not real.

_____

Name _____ Date _____ Class _____

California Standards MG3.3

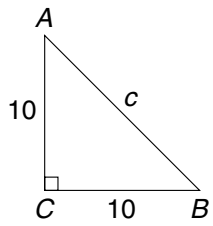
LESSON 4-9

Practice

The Pythagorean Theorem

Use the Pythagorean Theorem to find each missing measure to the nearest tenth.

1.



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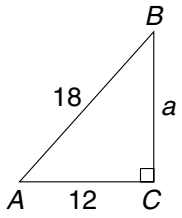
2.



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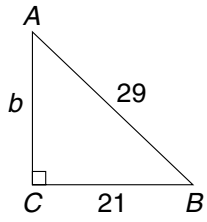

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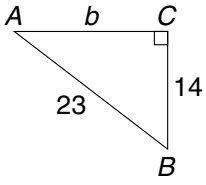

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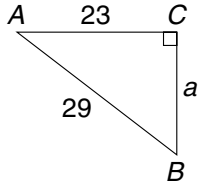
5.



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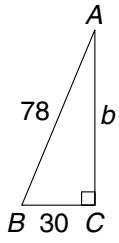
6.



_____

Tell whether the given side lengths form a right triangle.

7. 12, 35, 37

_____

8. 9, 11, 14

_____

9. 20, 21, 29

_____

10. A glider flies 8 miles south from the airport and then 15 miles east. Then it flies in a straight line back to the airport. What was the distance of the glider's last leg back to the airport?

_____

Name _____ Date _____ Class _____

California Standards Preparation for MG1.1

LESSON 5-1

Practice

Ratios

Write the ratio in simplest form.

1. 15 cows to 25 sheep _____

2. 24 cars to 18 trucks _____

3. 30 knives to 27 spoons _____

4. 34 mice to 17 cats _____

5. 12 notebooks to 20 pens _____

6. 44 students to 2 teachers _____

7. 9 feet to 84 inches _____

8. 6 yards to 18 feet _____

9. 12 feet to 12 inches _____

Simplify to tell whether the ratios are equal.

10. $\frac{13}{39}$ and $\frac{16}{48}$ _____

11. $\frac{21}{49}$ and $\frac{28}{56}$ _____

12. $\frac{12}{28}$ and $\frac{18}{42}$ _____

13. $\frac{18}{27}$ and $\frac{10}{15}$ _____

14. $\frac{24}{27}$ and $\frac{27}{30}$ _____

15. $\frac{14}{10}$ and $\frac{35}{25}$ _____

16. $\frac{10}{32}$ and $\frac{25}{80}$ _____

17. $\frac{16}{48}$ and $\frac{15}{45}$ _____

18. Mrs. Walters wanted one daffodil plant for every 2 tulip plants in her garden. If she planted 20 daffodil bulbs, how many tulip bulbs did she plant?

_____

19. In a survey, 9 out of 10 doctors recommended a certain medicine. If 80 doctors were surveyed, how many doctors recommended the medicine?

_____

20. A molecule of sodium carbonate contains 2 atoms of sodium to every 3 atoms of oxygen. Could a compound containing 12 atoms of sodium and 15 atoms of oxygen be sodium carbonate? Explain.

_____

Name _____ Date _____ Class _____

California Standards MG1.3

LESSON 5-2

Practice

Rates and Unit Rates

1. Copper weighing 4480 kilograms has a volume of 0.5 cubic meters. What is the density of copper?

_____

2. Yoshi's yogurt contains 15 calories per ounce. How many calories are in an 8-ounce container of Yoshi's yogurt?

_____

3. Emily earns $7.50 per hour. How much does she earn in 3 hours?

_____

Estimate the unit rate.

4. 43 apples in 5 bags

_____

5. $71.00 for 8 hours

_____

6. 146 students in 6 classes

_____

7. $52.00 for 5 hours

_____

8. 7 miles in 64 minutes

_____

9. $3.55 for 4 pounds

_____

Determine the lower unit price.

10. 8.2 oz of toothpaste for $2.99 or 6.4 oz of toothpaste for $2.49

_____

11. a 3 lb bag of apples for $2.99 or a 5 lb bag of apples for $4.99

_____

12. 16 oz bottle of soda for $1.25 or 20 oz bottle of soda for $1.55

_____

13. Mavis rides the bus every day. She bought a bus pass good for the month of October for $38.75. How much was Mavis charged per day for the bus pass?

_____

Name _____ Date _____ Class _____

California Standards AF4.2

LESSON 5-3

Practice

Proportions

Tell whether the ratios are proportional.

1. $\frac{3}{4} \stackrel{?}{=} \frac{9}{12}$ _____

2. $\frac{9}{24} \stackrel{?}{=} \frac{18}{48}$ _____

3. $\frac{16}{24} \stackrel{?}{=} \frac{10}{18}$ _____

4. $\frac{13}{25} \stackrel{?}{=} \frac{26}{50}$ _____

5. $\frac{10}{32} \stackrel{?}{=} \frac{16}{38}$ _____

6. $\frac{20}{36} \stackrel{?}{=} \frac{50}{90}$ _____

7. $\frac{20}{28} \stackrel{?}{=} \frac{28}{36}$ _____

8. $\frac{14}{42} \stackrel{?}{=} \frac{16}{36}$ _____

Solve each proportion.

9. $\frac{c}{15} = \frac{4}{10}$ _____

10. $\frac{a}{6} = \frac{8}{12}$ _____

11. $\frac{b}{20} = \frac{15}{12}$ _____

12. $\frac{w}{6} = \frac{15}{10}$ _____

13. Janessa bought 4 stamps for $1.48. At this rate, how much would 10 stamps cost?

_____

14. A karate team had 6 girls and 9 boys. Then 2 more girls and 3 more boys joined the team. Did the ratio of girls to boys stay the same? Explain.

_____

15. A 30 kg weight is positioned 2 m from a fulcrum. At what distance from the fulcrum must a 40 kg weight be positioned to keep the scale balanced?

_____

16. An electrician charges $51 for 3 hours of work. How much would the electrician charge for 2 hours of work?

_____

Name _____ Date _____ Class _____

California Standards MG1.3, AF4.2, MG1.1

LESSON 5-4

Practice

Dimensional Analysis

1. David takes 300 milligrams of medicine every day. How many grams is this?

_____

2. Jody runs the 500-yard dash for his school's track team. How many feet does he run in each 500-yard dash?

_____

3. Sean drinks six 12-ounce cans of soda a week. How many pints of soda does he drink in a week?

_____

4. A recipe for punch requires diluting the punch concentrate with 7 quarts of water. How many gallons of water are required to dilute the concentrate according to the directions?

_____

5. Jesse's dog Angel weighs $18\frac{1}{2}$ pounds. How many ounces does Angel weigh?

_____

6. A roll of tape contains 32.9 meters of tape. How many millimeters of tape does the roll contain?

_____

7. There are two types of lifts in the sport of weightlifting, the *snatch* and the *clean and jerk*. Winners are determined by the combined weights of the two type of lifts. In the 2002 Collegiate Weightlifting Competition, Timothy Leancu from the U.S. Naval Academy competed in the 94-kilogram weight class. He lifted 100 kg in the *snatch* and 132.5 kg in the *clean and jerk.* What was the combined weight of his lifts in grams?

_____

Name _____ Date _____ Class _____

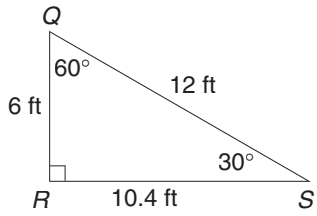
California Standards Preparation for MG1.2

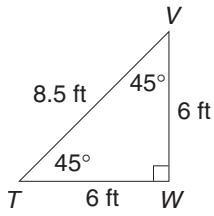
LESSON 5-5

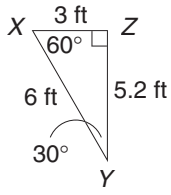
Practice

Similar Figures

1. Are any of these triangles similar?







2. A photo is 12 in. wide by 18 in. tall. If the width is scaled down to 9 inches, how tall should the similar photo be?

3. An isosceles triangle has a base of 20 cm and legs measuring 36 cm. How long are the legs of a similar triangle with base measuring 50 cm?

4. A picture of a school's mascot is 18 in. wide and 24 in. long. It is enlarged proportionally to banner size. If the width is enlarged to 63 in., what is the length of the banner?

5. Carol has a 24 cm × 36 cm photo that she reduces to $\frac{3}{4}$ of its size. What are the dimensions of the new photo?

6. Erik is drawing a picture of his school's basketball court. The actual basketball court is 84 ft long and 50 ft wide. If Erik draws the court with a length of 21 in., what will be the width?

7. The Henry Ford Museum in Dearborn, Michigan hosts a theater with one of the world's largest screens, which is 60 ft × 84 ft. If a classroom projection screen were changed to be in direct proportion with the screen at the Henry Ford Museum, the dimensions would be 5 ft × ___ ft.

Name _____ Date _____ Class _____

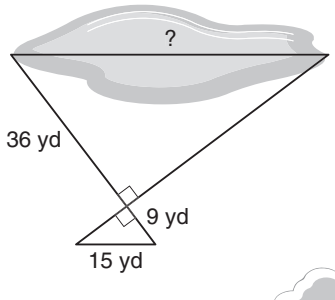
California Standards Extension of MG1.2

LESSON 5-6

Practice

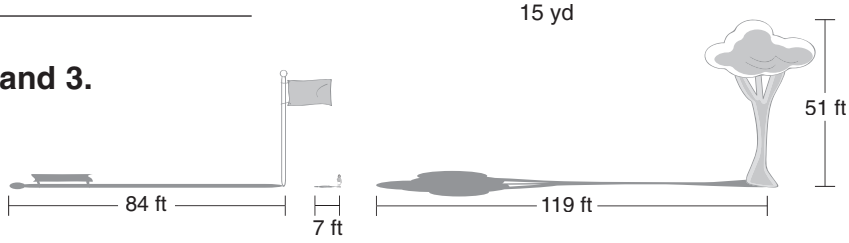
Indirect Measurement

1. Tamara wants to know the width of the pond at the park. She drew the diagram and labeled it with the measurements she made. How wide is the pond?



_____

Use the diagram for 2 and 3.



2. How tall is the flagpole?

_____

3. How tall is the child?

_____

Use the diagram for 4 and 5.

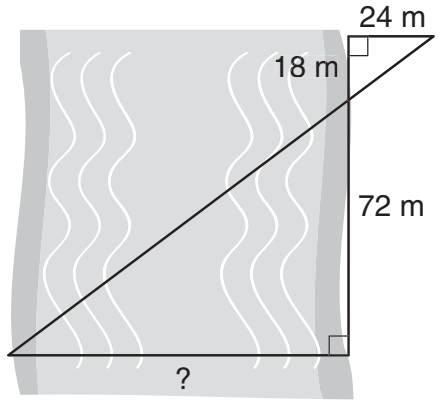
4. How tall is the house?

_____

5. The tree is 56 feet tall. How long is its shadow?

_____

6. Drew wants to know the distance across the river. He drew the diagram and labeled it with the measurements he made. What is the distance across the river?



_____

7. A warehouse is 120 feet tall and casts a shadow 288 feet long. At the same time, Julie casts a shadow 12 feet long. How tall is Julie?

_____

Name _____ Date _____ Class _____

California Standards MG1.2

LESSON 5-7

Practice

Scale Drawings and Scale Models

The scale of a drawing is $\frac{1}{4}$ in. = 15 ft. Find the actual measurement.

1. 9 in. _____

2. 12 in. _____

3. 14 in. _____

4. 15 in. _____

The scale is 2 cm = 25 m. Find the length each measurement would be on a scale drawing.

5. 150 m _____

6. 475 m _____

7. 350 m _____

8. 500 m _____

Tell whether each scale reduces, enlarges, or preserves the size of an actual object.

9. 1 m : 25 cm _____

10. 8 in. : 1 ft _____

11. 12 in. : 1 ft _____

12. On a map the distance between Atlanta, Georgia, and Nashville, Tennessee, is 12.5 in. The actual distance between these two cities is 250 miles. What is the scale?

_____

13. Blueprints of a house are drawn to the scale of $\frac{1}{4}$ in. = 1 ft. A kitchen measures 3.5 in. by 5 in. on the blueprints. What is the actual size of the kitchen?

_____

14. A scale model of a house is 1 ft long. The actual house is 50 ft long. In the model, the window is $1\frac{1}{5}$ in. high. How many feet high is the actual window?

_____

15. A model of a skyscraper is 1.6 in. long, 2.8 in. wide, and 11.2 in. high. The scale factor is 8 in. : 250 ft. What are the actual dimensions of the skyscraper?

_____

Name _____ Date _____ Class _____

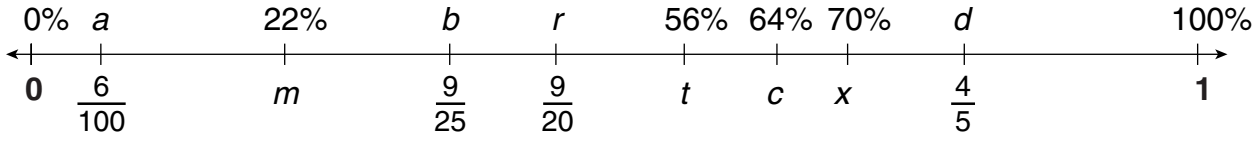
California Standards NS1.3

LESSON 6-1

Practice

Relating Fractions, Decimals, and Percents

Find the missing fraction or percent equivalent for each letter on the number line.



1. *a* _____

2. *b* _____

3. *c* _____

4. *d* _____

5. *m* _____

6. *r* _____

7. *t* _____

8. *x* _____

Compare. Write <, >, or =.

9. $\frac{3}{4}$ ☐ 70%

10. 60% ☐ $\frac{3}{5}$

11. 58% ☐ 0.6

12. 0.09 ☐ 15%

13. $\frac{2}{3}$ ☐ 59%

14. 0.45 ☐ 40.5%

Order the numbers from least to greatest.

15. 99%, 0.95, $\frac{5}{9}$, 9.5%

_____

16. $\frac{3}{8}$, 50%, 0.35, 38%

_____

17. $\frac{4}{5}$, 54%, 0.45, 44.5%

_____

18. $\frac{1}{3}$, 20%, 0.3, 3%

_____

19. There are 25 students in math class. Yesterday, 6 students were absent. What percent of the students were absent? _____

20. Albert spends 2 hours a day on his homework and an hour playing video games. What percent of the day is this? _____

21. Ragu ran the first 3 miles of a 5 mile race in 24 minutes. What percent of the race has he run? _____

Name _____ Date _____ Class _____

California Standards NS1.3

LESSON 6-2

Practice

Estimating with Percents

Estimate.

1. 74% of 99 _____

2. 25% of 39 _____

3. 52% of 10 _____

4. 21% of 50 _____

5. 30% of 61 _____

6. 24% of 48 _____

7. 5% of 41 _____

8. 50% of 178 _____

9. 33% out of 62 _____

Estimate.

10. 48% of 30 is about what number? _____

11. 26% of 36 is about what number? _____

12. 30% of 22 is about what number? _____

13. 21% of 63 is about what number? _____

14. Rodney's weekly gross pay is $91. He must pay about 32% in deductions. Estimate Rodney's weekly take-home pay after deductions. _____

15. In the last school election, 492 students voted. Mary received 48% of the votes. About how many votes did she receive? _____

16. A restaurant bill for lunch is $14.10. Grace wants to leave a 15% tip. About how much will lunch cost Grace in all? _____

17. A company has found that on average about 6% of the batteries they manufacture are defective. Out of 1,385 batteries, the supervisor assumes that about 83 are defective. Estimate to determine if the manager's number is reasonable? Explain. _____

_____

_____

Name _____ Date _____ Class _____

California Standards NS1.3

LESSON 6-3

Practice

Finding Percents

Find each percent.

1. What percent of 84 is 21?

_____

2. 24 is what percent of 60?

_____

3. What percent of 150 is 75?

_____

4. What percent of 80 is 68?

_____

5. 36 is what percent of 80?

_____

6. What percent of 88 is 33?

_____

7. 19 is what percent of 95?

_____

8. 28.8 is what percent of 120?

_____

9. What percent of 56 is 49?

_____

10. What percent of 102 is 17?

_____

11. What percent of 94 is 42.3?

_____

12. 90 is what percent of 75?

_____

13. Daphne bought a used car for $9200. She made a down payment of $1840. Find the percent of the purchase price that is the down payment. _____

14. Tricia read $\frac{1}{4}$ of her book on Monday. On Tuesday, she read 36% of the book. On Wednesday, she read 0.27 of the book. She finished the book on Thursday. What percent of the book did she read on Thursday? _____

15. An airplane traveled from Boston to Las Vegas making a stop in St. Louis. The plane traveled 2410 miles altogether, which is 230% of the distance from Boston to St. Louis. Find the distance from Boston to St. Louis to the nearest mile. _____

16. The first social studies test had 16 questions. The second test had 220% as many questions as the first test. Find the number of questions on the second test. _____

Name _____ Date _____ Class _____

California Standards NS1.3

LESSON 6-4

Practice

Finding a Number When the Percent Is Known

Find each number to the nearest tenth.

1. 40% of what number is 18?

_____

2. 28 is 35% of what number?

_____

3. 21 is 60% of what number?

_____

4. 25% of what number is 19?

_____

5. 40% of what number is 22?

_____

6. 41 is 50% of what number?

_____

7. 50 is 15% of what number?

_____

8. 0.3% of what number is 24?

_____

9. 36 is 30% of what number?

_____

10. 26 is 75% of what number?

_____

11. 12.5% of what number is 14?

_____

12. 25% of what number is 28.25?

_____

13. 27 is $33\frac{1}{3}$% of what number?

_____

14. 54 is 150% of what number?

_____

15. There were 546 students at a school assembly. This was 65% of all students who attend Content Middle School. How many students attend Content Middle School?

_____

16. On his last test Greg answered 64 questions correctly. This was 80% of the questions. How many questions were on the test?

_____

17. The price of a jacket at store A is $48. If the price at store B is 5.5% higher, what is the price difference? What is the cost of the jacket at store B?

_____

18. Carla has finished swimming 14 laps in swim practice. This is 70% of the total number of laps she must swim. How many more laps must Carla swim to complete her practice?

_____

Name _____ Date _____ Class _____

California Standards NS1.6, NS1.7

LESSON 6-5

Practice

Applying Percent of Increase and Decrease

Find each percent increase or decrease to the nearest percent.

1. from 16 to 20 _____

2. from 30 to 24 _____

3. from 15 to 30 _____

4. from 35 to 21 _____

5. from 40 to 46 _____

6. from 45 to 63 _____

7. from 18 to 26.1 _____

8. from 24.5 to 21.56 _____

9. from 90 to 72 _____

10. from 29 to 54 _____

11. from 42 to 92.4 _____

12. from 38 to 33 _____

13. from 64 to 36.4 _____

14. from 78 to 136.5 _____

15. from 89 to 32.9 _____

16. Mr. Havel bought a car for $2400 and sold it for $2700. What was the percent of profit for Mr. Havel in selling the car? _____

17. A computer store buys a computer program for $24 and sells it for $91.20. What is the percent of increase in the price? _____

18. A manufacturing company with 450 employees begins a new product line and must add 81 more employees. What is the percent of increase in the number of employees? _____

19. Richard earns $2700 a month. He received a 3% raise. What is Richard's new annual salary? _____

20. Marlis has 765 cards in her baseball card collection. She sells 153 of the cards. What is the percent of decrease in the number of cards in the collection? _____

Name _____ Date _____ Class _____

California Standards NS1.7, NS1.3

LESSON 6-6

Practice

Commission, Sales Tax, and Profit

Complete the table to find the amount of sales tax for each sale amount to the nearest cent.

1.

Sale amount	5% sales tax	8% sales tax	6.5% sales tax
$67.50			
$98.75			
$399.79			
$1250.00			

Complete the table to find the commission for each sale amount to the nearest cent.

2.

Sale amount	6% commision	9% commision	8.5% commission
$475.00			
$2450.00			
$12,500.00			
$98,900.00			

3. Alice makes bracelets and sells them for $5 each. If it costs her $2 to make a bracelet, what percent of the money she makes is profit?

_____

4. Phillipe works for a computer store that pays a 12% commission and no salary. What will Phillipe's weekly sales have to be for him to earn $360?

_____

5. The purchase price of a book is $35.85. The sales tax rate is 6.5%. How much is the sales tax to the nearest cent? What is the total cost of the book?

_____

6. Who made more commission this month? How much did she make? Salesperson A made 11% of $67,530. Salesperson B made 8% of $85,740.

_____

7. Jon earned $38,000 last year. He paid $6,840 towards entertainment. What percent of his earnings did Jon pay in entertainment expenses?

_____

8. The Cougars won 62% of their games. They won 93 games. How many games did they lose?

_____

Name _____ Date _____ Class _____

California Standards NS1.7

LESSON 6-7

Practice

Applying Simple and Compound Interest

Find the missing value.

1. principal = $125
rate = 4%
time = 2 years
interest = ?

_____

2. principal = ?
rate = 5%
time = 4 years
interest = $90

_____

3. principal = $150
rate = 6%
time = ? years
interest = $54

_____

4. principal = $200
rate = ?%
time = 3 years
interest = $30

_____

5. principal = $550
rate = ?%
time = 3 years
interest = $57.75

_____

6. principal = ?
rate = $3\frac{1}{4}$%
time = 2 years
interest = $63.05

_____

7. Kwang deposits money in an account that earns 5% simple interest. He earned $546 in interest 2 years later. How much did he deposit? _____

8. Simon opened a certificate of deposit with the money from his bonus check. The bank offered 4.5% interest for 3 years of deposit. Simon calculated that he would earn $87.75 interest in that time. How much did Simon deposit to open the account? _____

9. Douglas borrowed $1000 from Patricia. He agreed to repay her $1150 after 3 years. What was the interest rate of the loan? _____

10. Samantha invested $2000 in a savings account that pays 5% interest compounded semi-annually. Find the value of the investment after 6 years. _____

Name _____ Date _____ Class _____

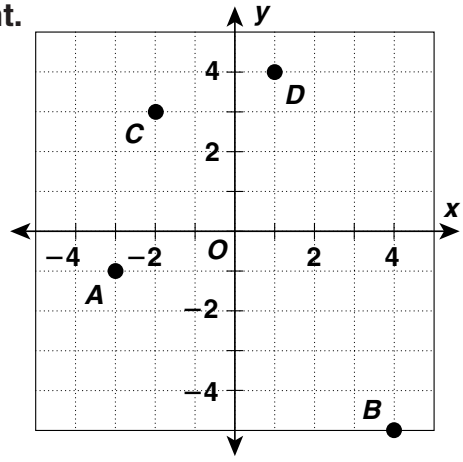
California Standards Preparation for AF3.3

LESSON 7-1

Practice

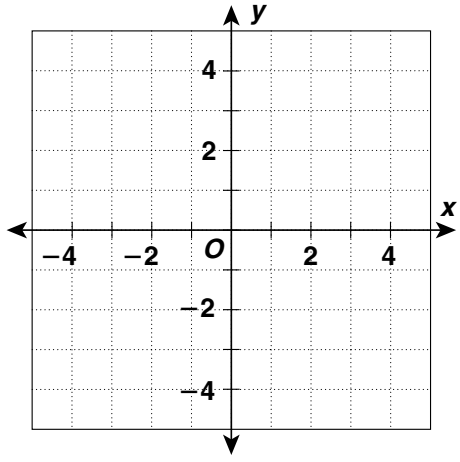
The Coordinate Plane

Identify the quadrant that contains each point.



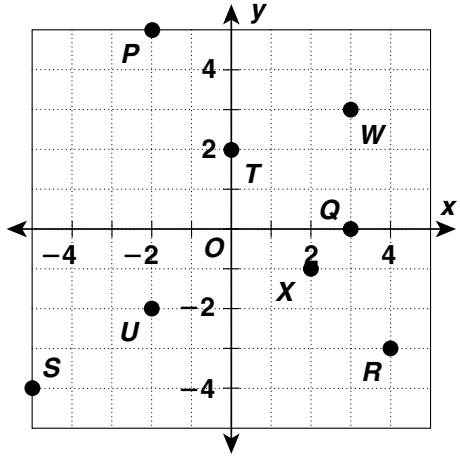
1. *A* _____
2. *B* _____
3. *C* _____
4. *D* _____

Plot each point on a coordinate plane.



5. (−4, 0)
6. (3, −3)
7. (1, 4)
8. (−5, −1)
9. (−2, 2)
10. (−1, −4)

Give the coordinates of each point.



11. *P* _____
12. *Q* _____
13. *R* _____
14. *S* _____
15. *T* _____
16. *U* _____
17. *W* _____
18. *X* _____

Name _____ Date _____ Class _____

California Standards Preparation for AF3.3

LESSON 7-2

Practice

Functions

Find the output for each input.

1. $y = 5x - 1$

Input	Rule	Output
x	**$5x - 1$**	***y***
−2		
0		
3		
6		

2. $y = -2x^2$

Input	Rule	Output
x	**$-2x^2$**	***y***
−2		
2		
3		
4		

3. $y = -2x + 5$

Input	Rule	Output
x	**$-2x + 5$**	***y***
−2		
−1		
0		
1		
2		

4. $y = x - 2$

Input	Rule	Output
x	**$x - 2$**	***y***
−2		
−1		
0		
1		
2		

Determine if each relationship represents a function.

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

_____

6.

x	1	2	1	2
y	6	5	−6	−5

_____

7.

x	***y***
0	0
1	−1
2	−8
3	−27
4	−64

_____

Name _____ Date _____ Class _____

California Standards AF3.3, AF1.1

LESSON 7-3

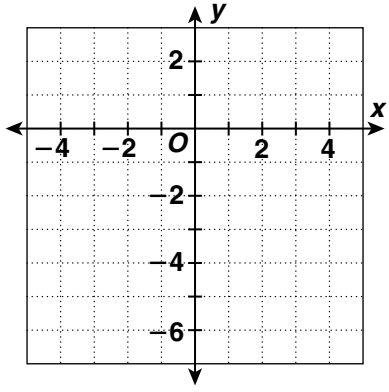
Practice

Graphing Linear Functions

Graph each linear function.

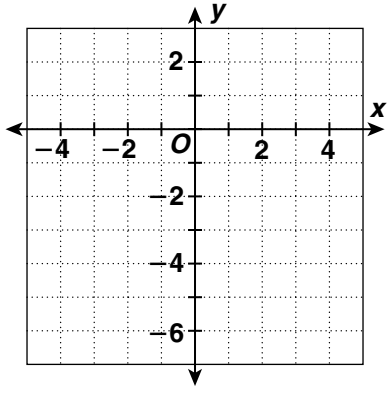
1. $y = -x - 5$

Input	Linear Equation	Output	Ordered Pair
x	$y = -x - 5$	y	(x, y)
−4			
−2			
0			



2. $y = 2x - 1$

Input	Linear Equation	Output	Ordered Pair
x	$y = 2x - 1$	y	(x, y)
−2			
0			
1			



3. The temperature of a swimming pool is 75°F. When the pool heater is turned on, the temperature rises 2°F every hour. What will the temperature be after 3 hours? Make a function table to answer the question.

_____

4. Mel's Pizza Place charges $15.00 for a large cheese pizza plus $1.25 for each additional topping. What will be the cost of a large pizza with 3 additional toppings? Make a function table to answer the question.

_____

Name _____ Date _____ Class _____

California Standards AF3.1

LESSON 7-4

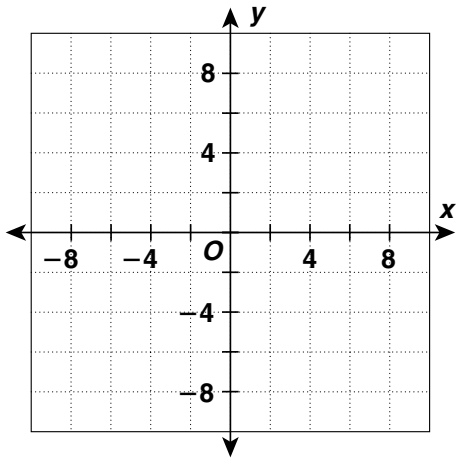
Practice

Graphing Quadratic Functions

Create a table for each quadratic function, and use it to make a graph.

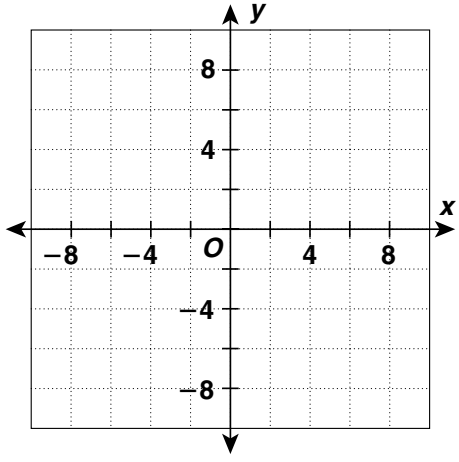
1. $y = x^2 - 5$

x	$y = x^2 - 5$
−3	$y = (-3)^2 - 5 = 4$
−1	
0	
2	
3	



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

x	$y = x^2 - 2x + 3$
3	
2	
1	
0	
−1	



3. Complete the table for the values $x = -3$, $x = 0$, and $x = 3$.

	$x = -3$	$x = 0$	$x = 3$
$y = x^2 - 2x + 1$			
$y = x^2 - 6$			
$y = x^2 - x + 3$			

4. The function $y = -4.9t^2$ gives the distance in meters that an object will fall toward Earth in t seconds. Find the distance an object will fall in 1, 2, 3, 4, and 5 seconds. (Note that the distance traveled by a falling object is shown by a negative number.)

_____

Name _____ Date _____ Class _____

California Standards AF3.1

LESSON 7-5

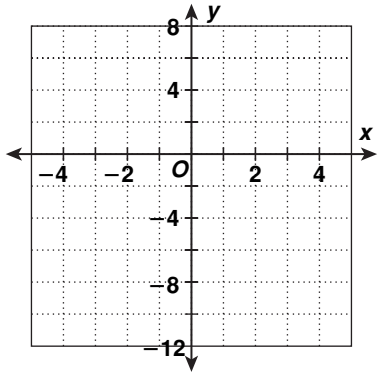
Practice

Cubic Functions

Complete the table for each cubic function, and use it to graph the function.

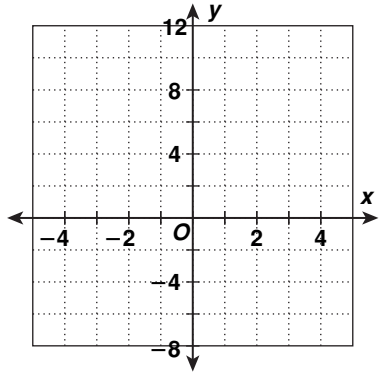
1. $y = x^3 - 4$

x	$x^3 - 4$	y
−2		
−1		
0		
1		
2		



2. $y = x^3 + 3$

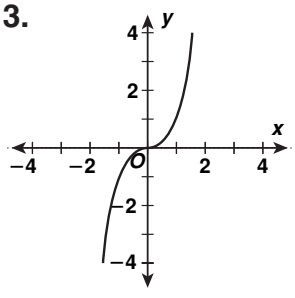
x	$x^3 + 3$	y
−2		
−1		
0		
1		
2		



Tell which of the following could be the graph of each equation.

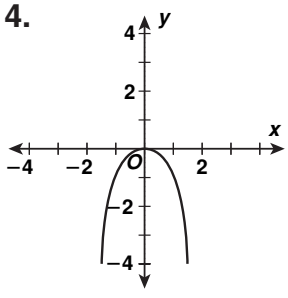
$y = 2x$, $y = 2x^2$, $y = -2x^2$, $y = 2x^3$

3.



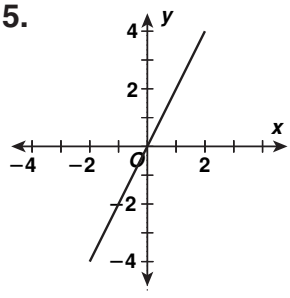
_____

4.



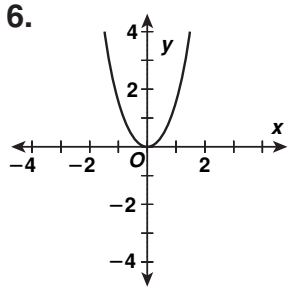
_____

5.



_____

6.



_____

Name _____ Date _____ Class _____

California Standards AF3.3

LESSON 7-6

Practice

Rate of Change and Slope

Determine whether each set of data has a constant or variable rate of change.

1.

x	0	3	4	5	7
y	2	5	6	7	9

_____

2.

x	0	4	6	7	8
y	3	11	13	15	18

_____

3.

x	1	3	5	7	11
y	2	3	4	5	7

_____

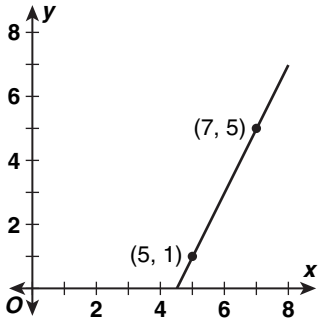
4.

x	3	5	7	10	13
y	0	4	8	11	14

_____

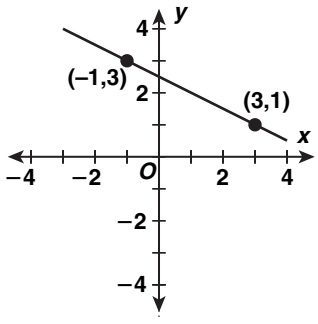
Find the slope of each line.

5.



Slope: _____

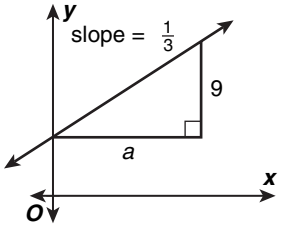
6.



Slope: _____

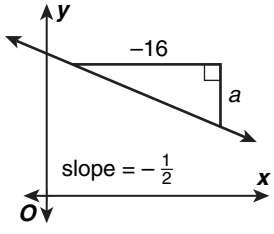
Find the value of *a*.

7.



_____

8.



_____

Name _____ Date _____ Class _____

California Standards AF3.4, AF3.3

LESSON 7-7

Practice

Finding Slope of a Line

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

1. (−2, −8), (1, 4) _____

2. (−2, 0), (0, 4) _____

3. (0, 4), (4, 4) _____

4. (3, −6), (2, −4) _____

5. (−3, 4), (3, −4) _____

6. (3, 0), (0, −6) _____

7. (3, 2), (3, −2) _____

8. (−4, 4), (3, −1) _____

9. (−5, −6), (3, −6) _____

10. (−6, −9), (4, −1) _____

11. (7, −1), (6, 2) _____

12. (−2, −1), (−3, −6) _____

13. The table shows the distance Ms. Long had traveled as she went to the beach. Use the data to make a graph. Find the slope of the line and explain what it shows.

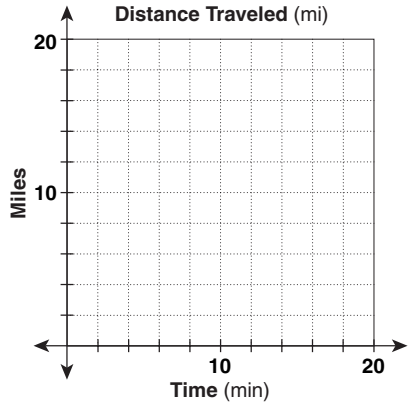
Time (min)	Distance (mi)
8	6
12	9
16	12
20	15

_____

_____

_____

_____



Name _____ Date _____ Class _____

California Standards AF1.5

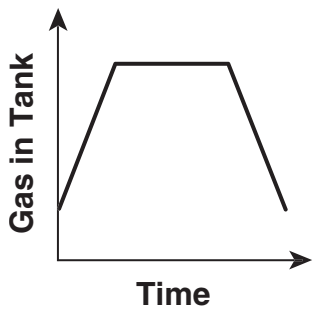
LESSON 7-8

Practice

Interpreting Graphs

1. The gas tank in Karen's car was full. Karen drove the car until only $\frac{1}{4}$ of the tank was full. Karen filled up the tank again and drove the car until $\frac{1}{4}$ of the tank was full. Which graph best shows the story? Circle the letter of your answer.

A



B

C

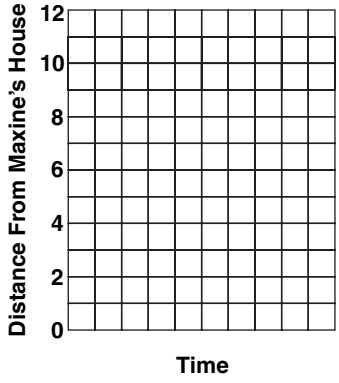
2. An elevator started at the ground floor. It went up to the sixth floor and stopped, then went to the fourth floor and stopped, and finally returned to the ground floor. Which graph best shows the story? Circle the letter of your answer.

F

G

H

3. Maxine biked 6 miles from her house to the park. She played some softball. Then she biked 4 miles farther to the movie theater. After watching a movie, Maxine returned home. Sketch the graph so that it shows the distance Maxine is from home compared to the time.



Name _____ Date _____ Class _____

California Standards AF4.2, AF3.3, AF3.4

LESSON 7-9

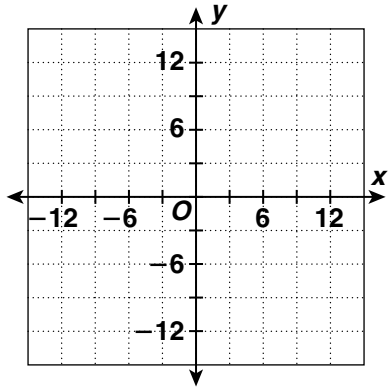
Practice

Direct Variation

Make a graph to determine whether the data sets show direct variation.

1.

x	*y*
6	9
4	6
0	0
−2	−3
−8	−12



2. Write the equation of direct variation for Exercise 1.

3. Reynaldo ordered 12 large pepperoni pizzas. The total cost was $101.40. Write a direct variation function for the cost of one large pepperoni pizza. How much would 5 large pepperoni pizzas cost?

4. Randall earns $460 for working a 40-hour work week. Write a direct variation function for the amount that Randall earns in one hour. How much money would Randall earn if he only worked 28 hours in one week?

5. The table shows the length and width of various U.S. flags. Determine whether there is direct variation between the two data sets. If so, find the equation of direct variation.

Length (ft)	2.85	5.7	7.6	9.88	11.4
Width (ft)	1.5	3	4	5.2	6

Name _____ Date _____ Class _____

California Standards Preparation for MG3.1

LESSON 8-1

Practice

Points, Lines, Planes, and Angles

Use the diagram to name each figure.

1. four points

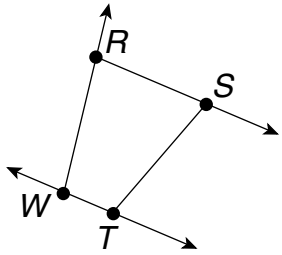
_____

2. a line

_____

3. a plane

_____



4. three segments

_____

5. four rays

_____

Use the diagram to name each figure.

6. a right angle

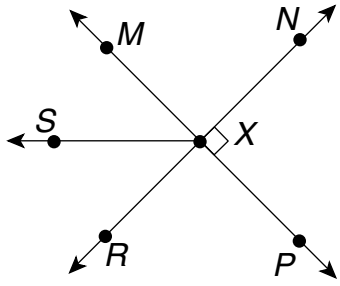
_____

7. two acute angles

_____

8. two obtuse angles

_____



9. a pair of complementary angles

_____

_____

_____

10. three pairs of supplementary angles

_____

_____

_____

Name _____ Date _____ Class _____

California Standards MG3.6

LESSON 8-2

Practice

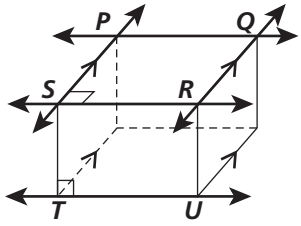
Geometric Relationships

Identify two lines that have the given relationship.

1. parallel lines _____

2. perpendicular lines _____

3. skew lines _____

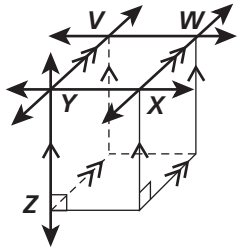


Identify two lines that have the given relationship.

4. parallel lines _____

5. perpendicular lines _____

6. skew lines _____

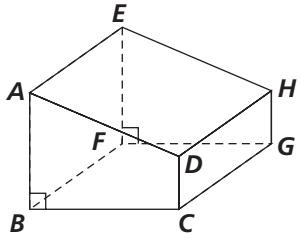


Identify two planes that appear to have the given relationship.

7. parallel planes _____

8. perpendicular planes _____

9. neither parallel nor perpendicular _____

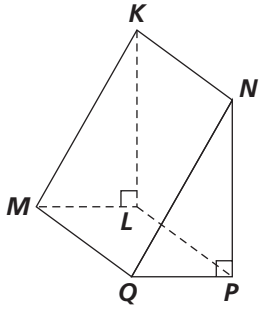


Identify two planes that appear to have the given relationship.

10. parallel planes _____

11. perpendicular planes _____

12. neither parallel nor perpendicular _____



13. In Center City, Grove Street is parallel to Market Street. Addison Street is perpendicular to Grove Street. Carter Street is neither parallel nor perpendicular to Addison Street. Draw and label a map showing the streets in the space provided.

Name _____ Date _____ Class _____

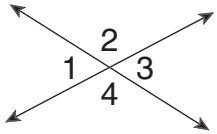
California Standards Review of 6MG2.2, 6MG2.1

LESSON 8-3

Practice

Angle Relationships

In the figure, ∠1 and ∠3 are vertical angles, and ∠2 and ∠4 are vertical angles.



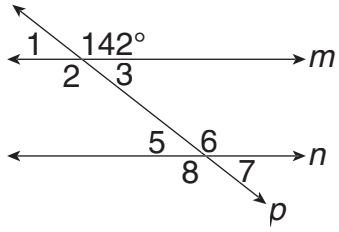
1. If m∠2 = 110°, find m∠4.

_____

2. If m∠1 = n°, find m∠3.

_____

In the figure, line *m* ∥ line *n*. Find the measure of each angle.



3. ∠1

_____

4. ∠2

_____

5. ∠5

_____

6. ∠6

_____

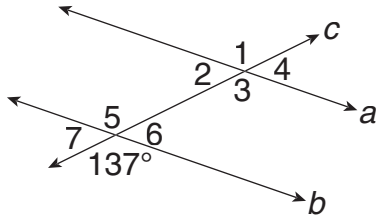
7. ∠8

_____

8. ∠7

_____

In the figure, line *a* ∥ line *b*. Find the measure of each angle.



9. ∠2

_____

10. ∠5

_____

11. ∠6

_____

12. ∠7

_____

13. ∠4

_____

14. ∠3

_____

Name _____ Date _____ Class _____

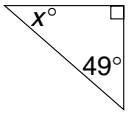
California Standards MG3.3, Review of 6MG2.2

LESSON 8-4

Practice

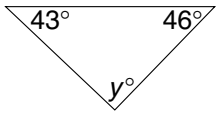
Triangles

1. Find $x°$ in the right triangle.



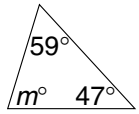
_____

2. Find $y°$ in the obtuse triangle.



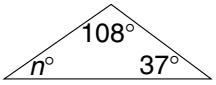
_____

3. Find $m°$ in the acute triangle.



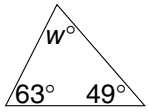
_____

4. Find $n°$ in the obtuse triangle.



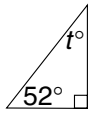
_____

5. Find $w°$ in the acute triangle.



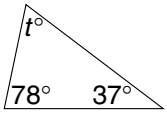
_____

6. Find $t°$ in the right triangle.



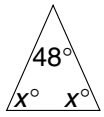
_____

7. Find $t°$ in the scalene triangle.



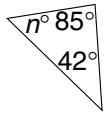
_____

8. Find $x°$ in the isosceles triangle.



_____

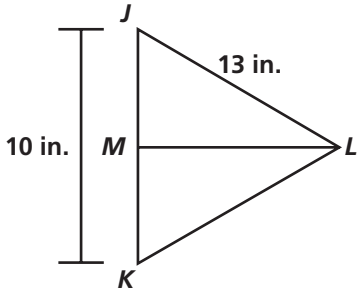
9. Find $n°$ in the scalene triangle.



_____

10. In the figure, M is the midpoint of $\overline{JK}$ and $\overline{LM}$ is perpendicular to $\overline{JK}$. Find the length of $\overline{LM}$.

_____



11. The second angle in a triangle is one third as large as the first. The third angle is two thirds as large as the first angle. Find the angle measures. Draw a possible picture of the triangle.

_____

Name _____ Date _____ Class _____

California Standards MG3.2, AF3.3

LESSON 8-5

Practice

Coordinate Geometry

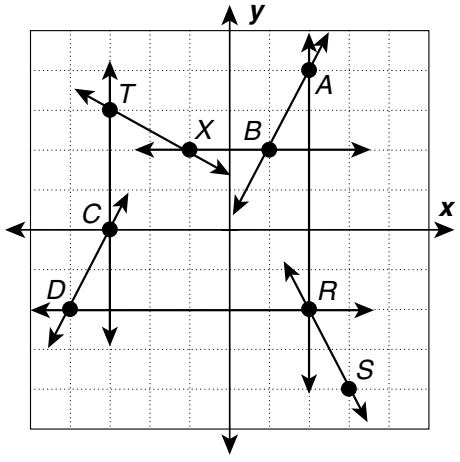
Determine if the slope of each line is positive, negative, 0, or undefined. Then find the slope of each line.

1. $\overleftrightarrow{AB}$

_____

2. $\overleftrightarrow{CD}$

_____



3. $\overleftrightarrow{RS}$

_____

4. $\overleftrightarrow{TC}$

_____

5. $\overleftrightarrow{DR}$

_____

6. $\overleftrightarrow{TX}$

_____

7. Which lines are parallel?

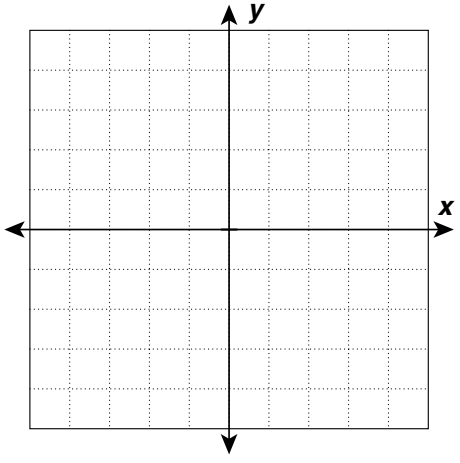
_____

8. Which lines are perpendicular?

_____

Graph the quadrilateral with the given vertices. Write all the names that apply to the quadrilateral.

9. (−1, 1), (4, 1), (1, −3), (−4, −3)

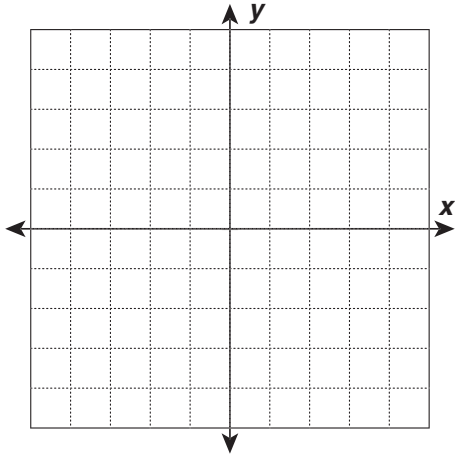


_____

_____

Find the coordinates of the missing vertex.

10. rhombus *ABCD* with *A*(0, 4), *B*(4, 1), and *C*(0, –2)



_____

Name _____ Date _____ Class _____

California Standards MG3.4

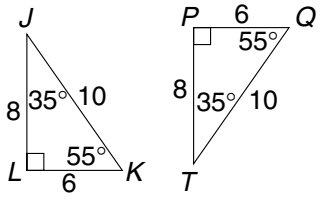
LESSON 8-6

Practice

Congruent Polygons

Write a congruence statement for each pair of polygons.

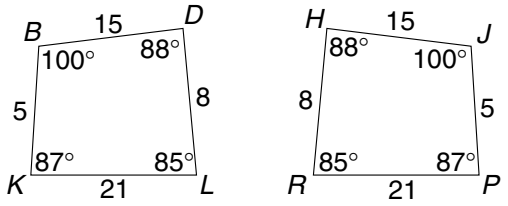
1.



_____

_____

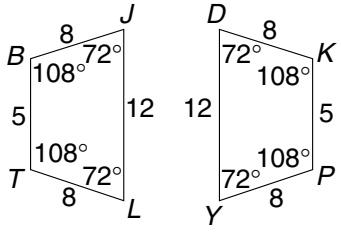
2.



_____

_____

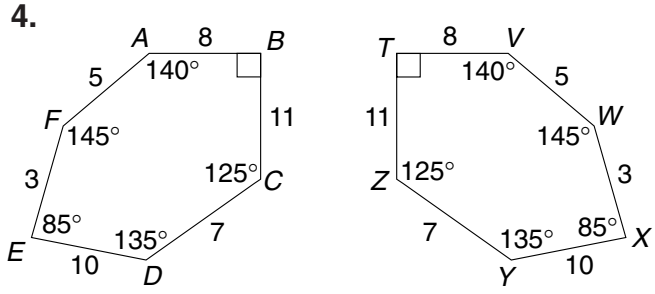
3.



_____

_____

4.



_____

_____

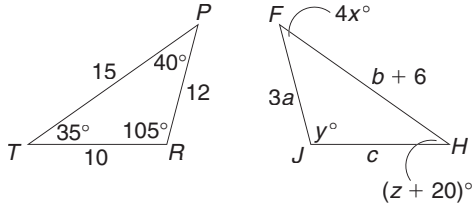
In the figure, triangle *PRT* ≅ triangle *FJH*.

5. Find *a*.

_____

6. Find *b*.

_____



7. Find *c*.

_____

8. Find *x*.

_____

9. Find *y*.

_____

10. Find *z*.

_____

Name _____ Date _____ Class _____

California Standards MG3.2

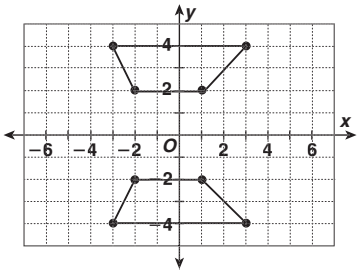
LESSON 8-7

Practice

Transformations

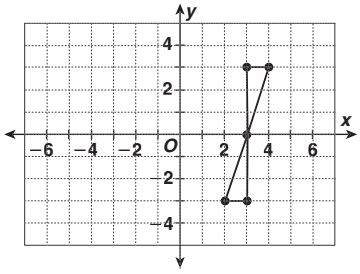
Identify each type of transformation.

1.



_____

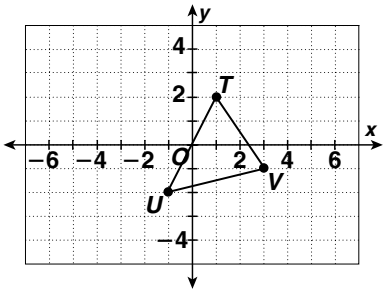
2.



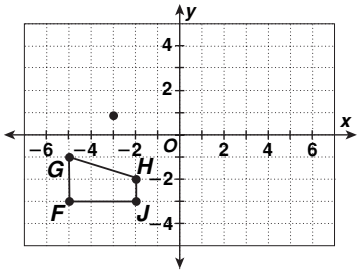
_____

Graph each translation.

3. 5 units to the left and 2 units up

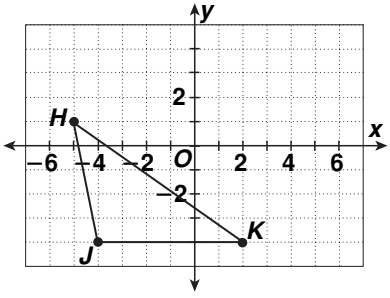


4. 4 units to the right and 3 units up

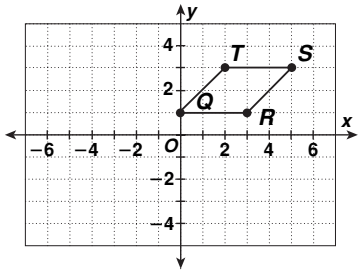


Graph the reflection of each figure across the indicated axis. Write the coordinates of the vertices of the image.

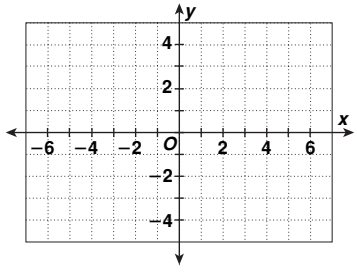
5. *x*-axis



6. *y*-axis



7. Triangle *DEF* has vertices at *D*(−2, −1), *E*(−2, −3), and *F*(−5, −3). Rotate △*DEF* 90° clockwise about the vertex *D*.



Name _____ Date _____ Class _____

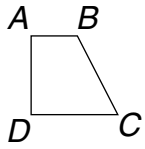
California Standards Extension of MG3.2

LESSON 8-8

Practice

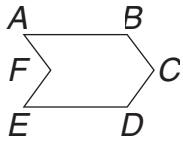
Tessellations

1. Create a tessellation with quadrilateral *ABCD*.



2. Use rotations to create a variation of the tessellation in Exercise 1.

3. Create a tessellation with hexagon ABCDEF.



4. Use rotations to create a variation of the tessellation in Exercise 3.

Name _____ Date _____ Class _____

California Standards MG2.1, MG2.2, MG2.4, MG3.2

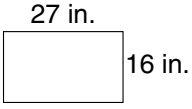
LESSON 9-1

Practice

Perimeter and Area of Parallelograms

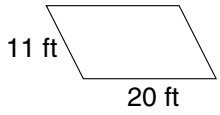
Find the perimeter of each figure.

1.



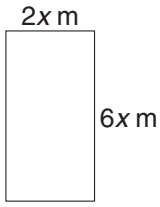
_____

2.



_____

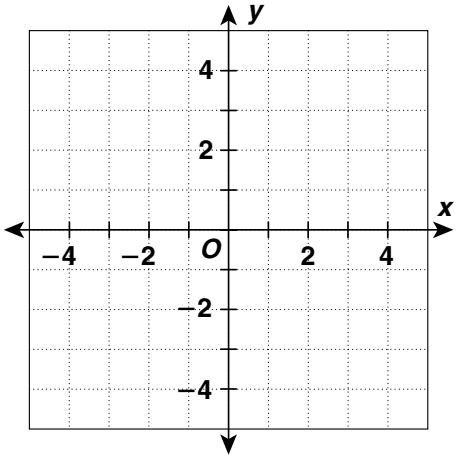
3.



_____

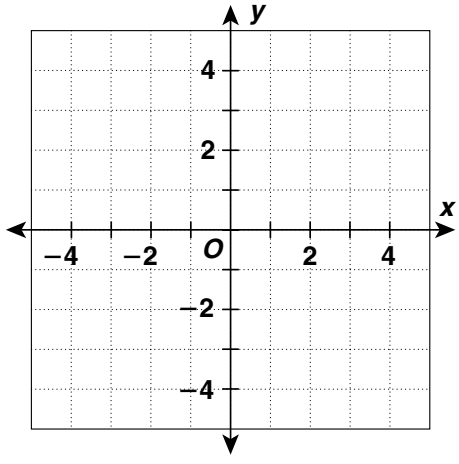
Graph and find the area of each figure with the given vertices.

4. (−3, 4), (3, 4), (3, −4), (−3, −4)



_____

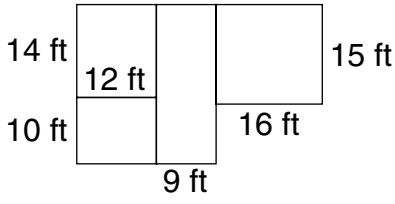
5. (−1, 3), (2, 3), (−1, −4), (−4, −4)



_____

6. Find the perimeter and area of the figure.

_____



Name _____ Date _____ Class _____

California Standards MG2.1, MG3.2

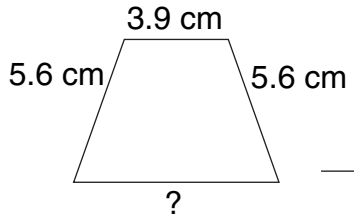
LESSON 9-2

Practice

Perimeter and Area of Triangles and Trapezoids

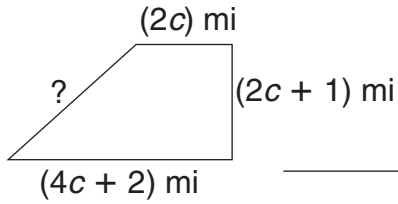
Find the missing measurement for each figure with the given perimeter.

1. $P = 22.8$ cm



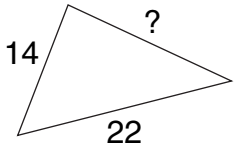
_____

2. $P = 11c + 5$ mi



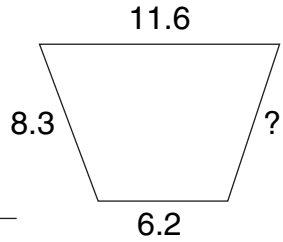
_____

3. $P = 54$ units



_____

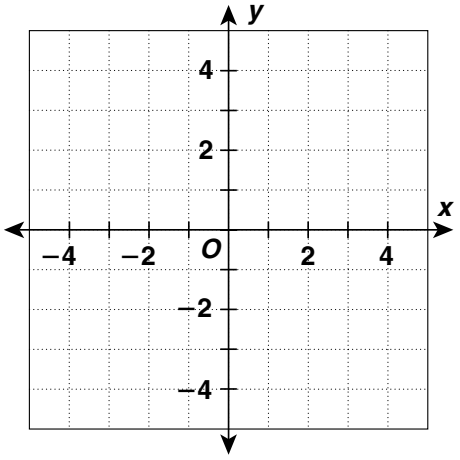
4. $P = 34$ units



_____

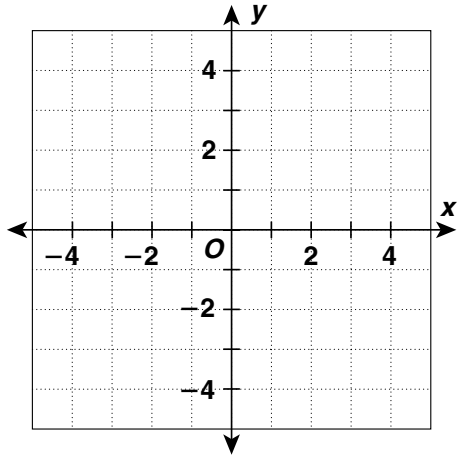
Graph and find the area of each figure with the given vertices.

5. (−1, 3), (4, 3), (4, −4), (−4, −4)



_____

6. (−1, 2), (−4, −2), (4, −2)



_____

7. The two shortest sides of a pennant shaped like a right triangle measure 10 inches and 24 inches. Hank wants to put colored tape around the edge of the pennant. How many inches of tape does he need?

_____

Name _____ Date _____ Class _____

California Standards MG3.1

LESSON 9-3

Practice

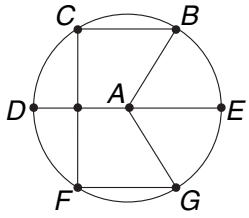
Circles

Name the parts of circle *A*.

1. radii _____

2. diameters _____

3. chords _____

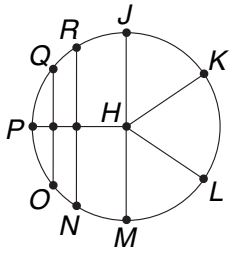


Name the parts of circle *H*.

4. radii _____

5. diameters _____

6. chords _____

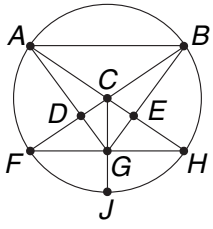


Name the parts of circle *C*.

7. radii _____

8. diameters _____

9. chords _____

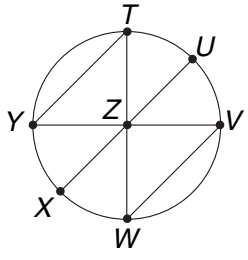


Name the parts of circle *Z*.

10. radii _____

11. diameters _____

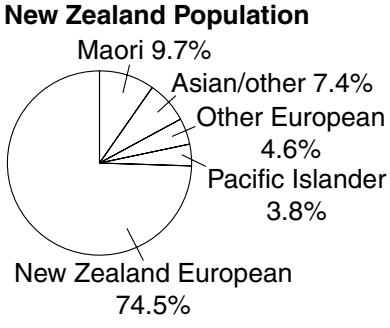
12. chords _____



Use the circle graph.

13. The circle graph shows the distribution of ethnic groups in New Zealand. Find the central angle measure of the sector that shows the percent of New Zealanders who are Maori.

_____



Name _____ Date _____ Class _____

California Standards MG2.1

LESSON 9-4

Practice

Circumference and Area

Find the circumference of each circle, both in terms of π and to the nearest tenth. Use 3.14 for π.

1. circle with radius 10 in.

_____

2. circle with diameter 13 cm

_____

3. circle with diameter 18 m

_____

4. circle with radius 15 ft

_____

5. circle with radius 11.5 in.

_____

6. circle with diameter 16.4 cm

_____

Find the area of each circle, both in terms of π and to the nearest tenth. Use 3.14 for π.

7. circle with radius 9 in.

_____

8. circle with diameter 14 cm

_____

9. circle with radius 20 ft

_____

10. circle with diameter 17 m

_____

11. circle with diameter 15.4 m

_____

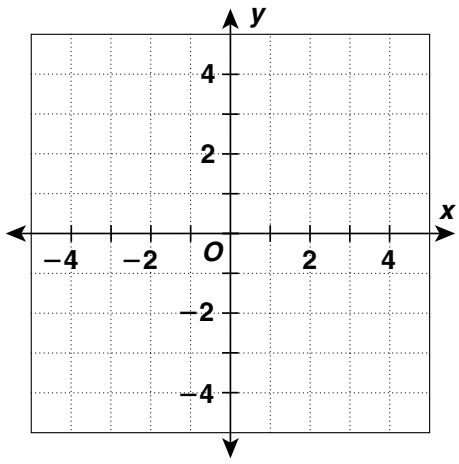
12. circle with radius 22 yd

_____

13. Graph a circle with center (0, 0) that passes through (0, −3). Find the area and circumference, both in terms of π and to the nearest tenth. Use 3.14 for π.

_____

_____



14. A wheel has a radius of $2\frac{1}{3}$ feet. About how far does it travel if it makes 60 complete revolutions? Use $\frac{22}{7}$ for π.

_____

Name _____ Date _____ Class _____

California Standards MG2.2

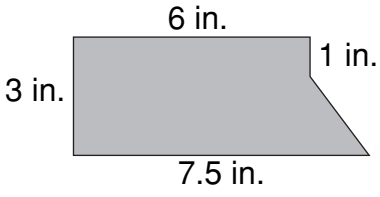
LESSON 9-5

Practice

Area of Composite Figures

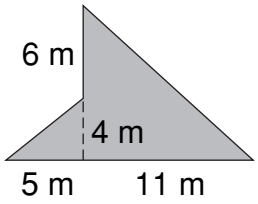
Find the shaded area. Round to the nearest tenth, if necessary.

1.



_____

2.



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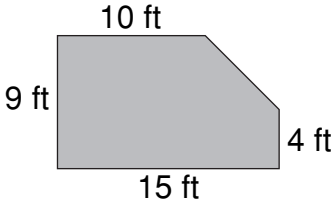
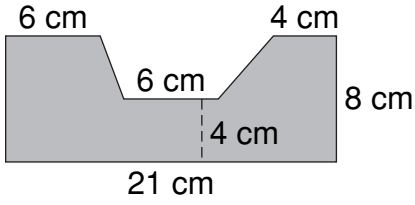
3.



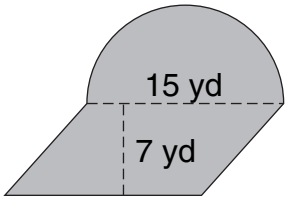
_____

4.



_____

5.



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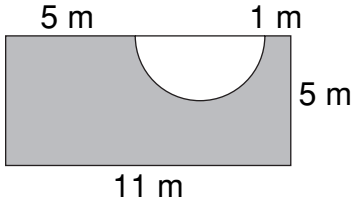
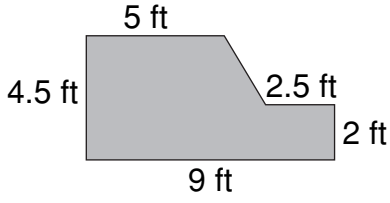
6.



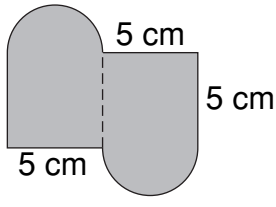
_____

7. Nate is covering the garden plot shown at right with mulch. What is the area of the plot to the nearest tenth of a square foot?



_____

8. Suki designed the logo shown at right for a publishing company. Find the area of the logo to the nearest tenth of a square centimeter.



_____

Name _____ Date _____ Class _____

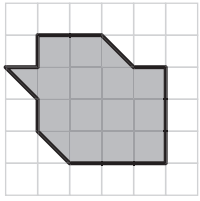
California Standards MG2.2

LESSON 9-6

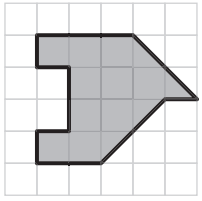
Practice

Area of Irregular Figures

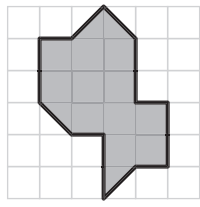
Find the area of each figure.

1. 

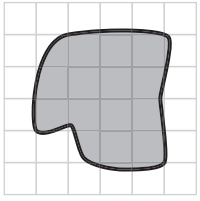
_____

2. 

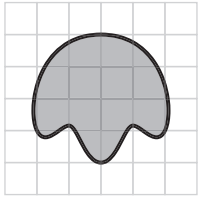
_____

3. 

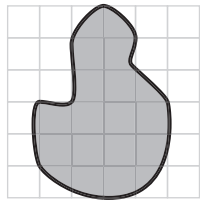
_____

4. 

_____

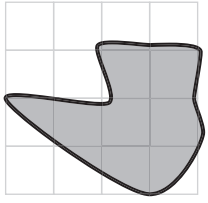
5. 

_____

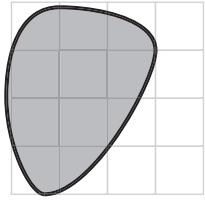
6. 

_____

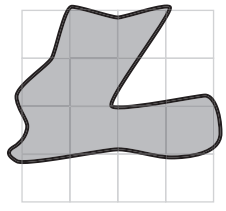
Use a composite figure to estimate the shaded area.

7. 

_____

8. 

_____

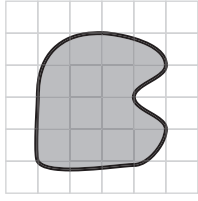
9. 

_____

The figure shows an irregular area that is part of Elena's garden. She wants to cover the area with pebbles.

10. Estimate the area that is to be covered with pebbles.

_____



□ = 1 ft^2

11. It costs $3 per square foot to cover an area of the garden with pebbles. How much should Elena plan to spend on the pebbles? Explain.

_____

Name _____ Date _____ Class _____

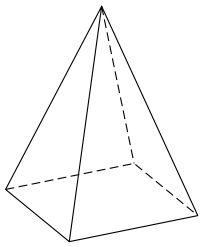
California Standards Preparation for MG2.1

LESSON 10-1

Practice

Three-Dimensional Figures

Describe the base or bases of each figure. Then name the figure.

1. 

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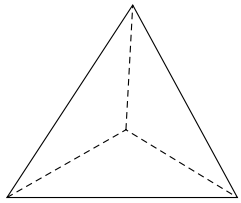
2. 

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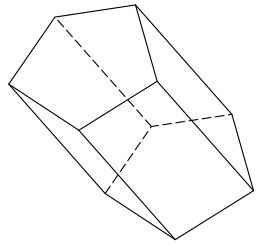
3. 

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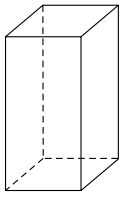
4. 

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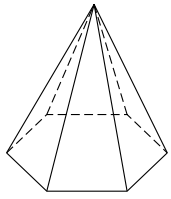
5. 

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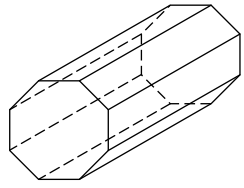
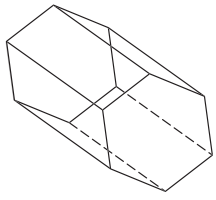
6. 

_____

_____

Classify each figure as a polyhedron or not a polyhedron. Then name the figure.

7. 

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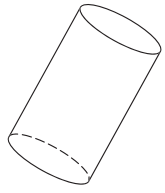
8. 

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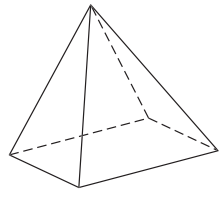
9. 

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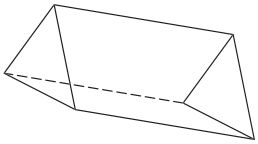
10. 

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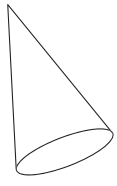
_____

11. 

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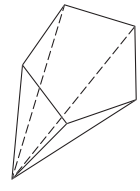
12. 

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Name _____ Date _____ Class _____

California Standards MG2.1, MG2.4

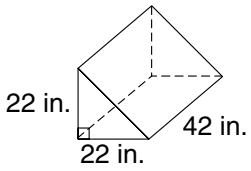
LESSON 10-2

Practice

Volume of Prisms and Cylinders

Find the volume of each figure to the nearest tenth. Use 3.14 for π.

1.



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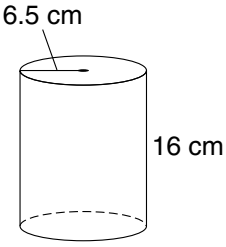
2.



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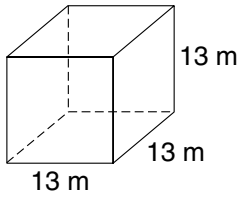
3.



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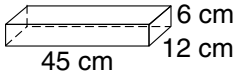
4.



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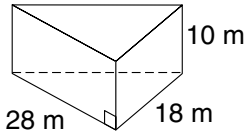
5.



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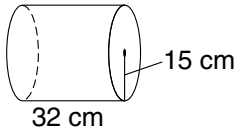
6.



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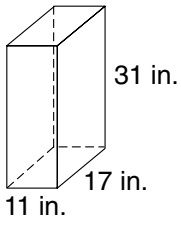
7.



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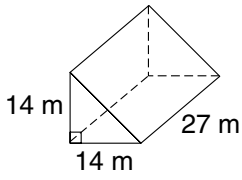
8.



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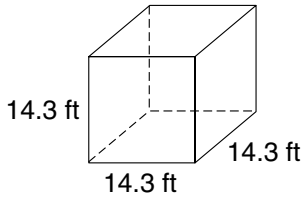
9.



_____

10. A cylinder has a radius of 6 ft and a height of 25 ft. Explain whether tripling the height will triple the volume of the cylinder.

_____

_____

11. Contemporary American building bricks are rectangular blocks with the standard dimensions of about 5.7 cm by 9.5 cm by 20.3 cm. What is the volume of a brick to the nearest tenth of a unit?

_____

12. Ian is making candles. His cylindrical mold is 8 in. tall and has a base with a diameter of 3 in. Find the volume of a finished candle to the nearest tenth of a unit.

_____

Name _____ Date _____ Class _____

California Standards Extension of MG2.1

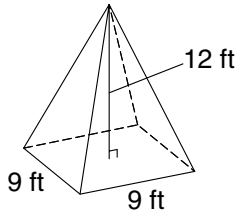
LESSON 10-3

Practice

Volume of Pyramids and Cones

Find the volume of each figure to the nearest tenth. Use 3.14 for π.

1.



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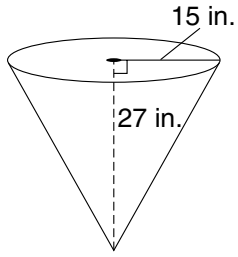

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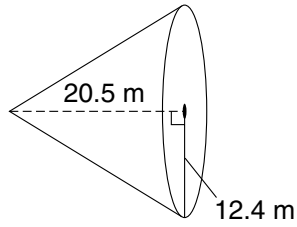

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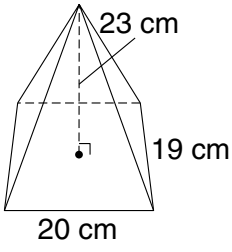

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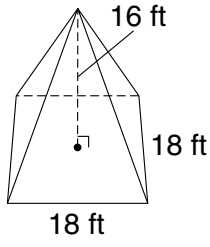

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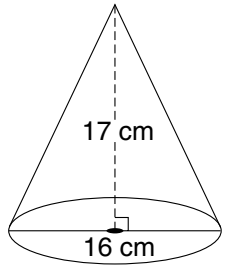

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7. The base of a regular pyramid has an area of 28 in^2. The height of the pyramid is 15 in. Find the volume. _____

8. The radius of a cone is 19.4 cm and its height is 24 cm. Find the volume of the cone to the nearest tenth. _____

9. Find the volume of a rectangular pyramid if the height is 13 m and the base sides are 12 m and 15 m. _____

10. A funnel has a diameter of 9 in. and is 16 in. deep. Use a calculator to find the volume of the funnel to the nearest hundredth. _____

11. A square pyramid has a height 18 cm and a base that measures 12 cm on each side. Find the volume.

_____

Name _____ Date _____ Class _____

California Standards MG2.1, MG2.2, MG2.3

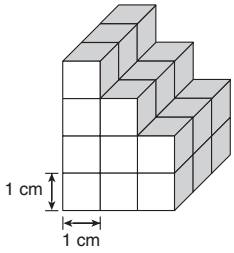
LESSON 10-4

Practice

Surface Area of Prisms and Cylinders

Find the surface area of each figure. The figure is made up of congruent cubes.

1.



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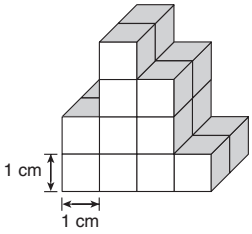

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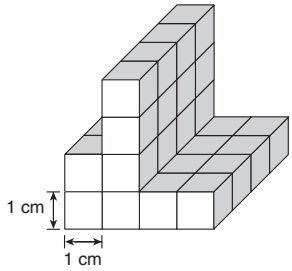

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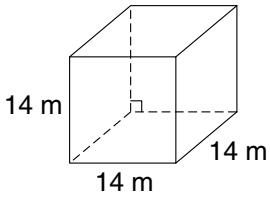

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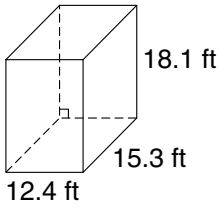

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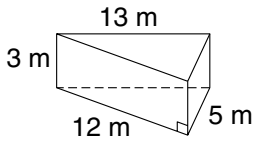

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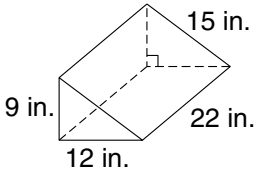

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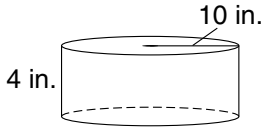

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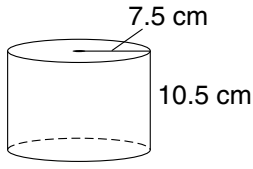


_____

10. Find the surface area to the nearest tenth of a rectangular prism with height 15 m and sides 14 m and 13 m. _____

11. Find the surface area to the nearest tenth of a cylinder 61.7 ft tall that has a diameter of 38 ft. _____

12. Henry wants to paint the ceiling and walls of his living room. One gallon of paint covers 450 ft^2. The room is 24 ft by 18 ft, and the walls are 9 ft high. How many full gallons of paint will Henry need to paint his living room? _____

13. A rectangular prism is 18 in. by 16 in. by 10 in. Explain the effect, if any, tripling all the dimensions will have on the surface area of the figure.

_____

_____

Name _____ Date _____ Class _____

California Standards Extension of MG2.1

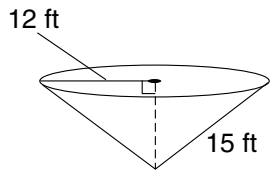
LESSON 10-5

Practice

Surface Area of Pyramids and Cones

Find the surface area of each figure to the nearest tenth. Use 3.14 for π.

1.



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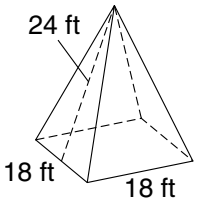

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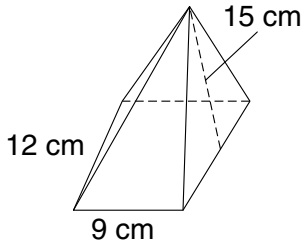

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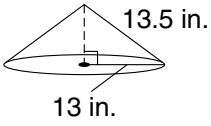

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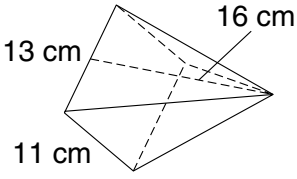
5.



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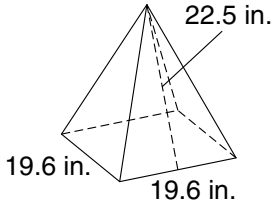

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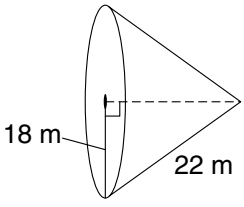

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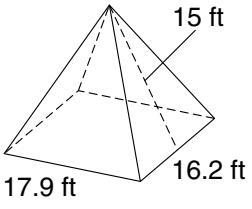

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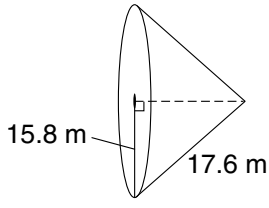


_____

10. Find the surface area of a regular square pyramid with a slant height of 17 m and a base perimeter of 44 m. _____

11. Find the length of the slant height of a square pyramid if one side of the base is 15 ft and the surface area is 765 ft^2. _____

12. Find the length of the slant height of a cone with a radius of 15 cm and a surface area of 1884 cm^2. _____

13. A cone has a diameter of 12 ft and a slant height of 20 ft. Explain whether tripling both dimensions would triple the surface area.

_____

_____

_____

Name _____ Date _____ Class _____

California Standards Extension of MG2.1

LESSON 10-6

Practice

Spheres

Find the volume of each sphere, both in terms of π and to the nearest tenth. Use 3.14 for π.

1. $r = 9$ ft

2. $r = 21$ m

3. $d = 30$ cm

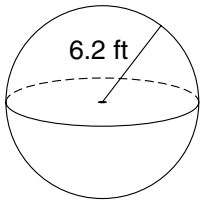
4. $d = 24$ cm

5. $r = 15.4$ in.

6. $r = 16.01$ ft

Find the surface area of each sphere, both in terms of π and to the nearest tenth. Use 3.14 for π.

7.



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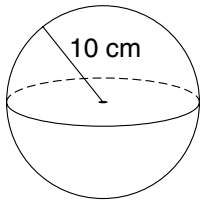

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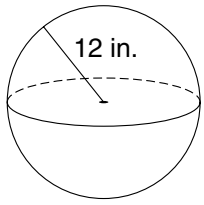

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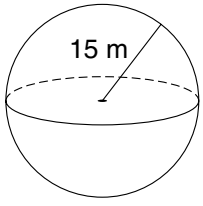
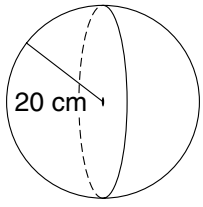


11.



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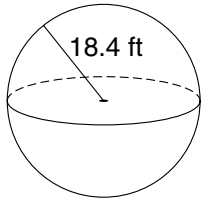


13. In the sport of track and field, a field event is the shot put. This is a game in which a heavy ball or shot is thrown or put for distance. The shot itself comes in various sizes, weights and composition. Find the volume and surface area of a shot with diameter 5.5 cm both in terms of π and to the nearest tenth.

Name _____ Date _____ Class _____

California Standards MG2.3

LESSON 10-7

Practice

Scaling Three-Dimensional Figures

A 10 in. cube is built from small cubes, each 2 in. on a side. Compare the following values.

1. The side lengths of the two cubes

_____

_____

2. The surface area of the two cubes

_____

3. The volumes of the two cubes

_____

A 9 cm cube is built from small cubes, each 3 cm on a side. Compare the following values.

4. The side lengths of the two cubes

_____

_____

5. The surface area of the two cubes

_____

6. The volumes of the two cubes

_____

7. The surface area of a bucket is 6176 cm^2. What is the surface area of a similar bucket that is smaller by a scale of $\frac{1}{4}$?

_____

8. The volume of a cone is 316 in^3. What is the volume of a similar cone that is larger by a scale of 3?

_____

9. It takes a machine 40 seconds to fill a cubic box with sides measuring 10 in. How long will it take the same machine to fill a cubic box with sides measuring 15 in.?

_____

Name _____ Date _____ Class _____

California Standards SDAP1.1

LESSON 11-1

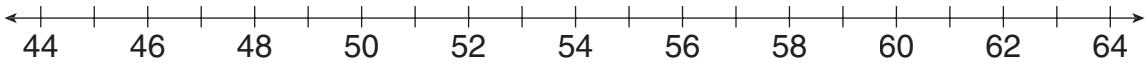
Practice

Line Plots and Stem-and-Leaf Plots

The table shows the heights of students in Ms. Blaire's class. Use the table for Exercises 1 and 2.

	Height (in.)
Males	60, 45, 48, 57, 62, 59, 57, 60, 56, 58, 61, 52, 55
Females	49, 52, 56, 48, 51, 60, 47, 53, 55, 58, 54

1. Make a line plot of the data.



2. Which height occurred the greatest number of times? _____

3. Make a stem-and-leaf plot of the data.

Height of Students

Stem	**Leaves**

Key:

4. How many of the students were less than 50 in. tall? _____

5. Use the given data to make a back-to-back stem-and-leaf plot.

NBA Midwest Division 2000–2001 Final Standings

NBA Team	**Wins**	**Losses**	**NBA Team**	**Wins**	**Losses**
San Antonio Spurs	58	24	Houston Rockets	45	37
Utah Jazz	53	29	Denver Nuggets	40	42
Dallas Mavericks	53	29	Vancouver Grizzlies	23	59
Minnesota Timberwolves	47	35			

Wins		**Losses**

Key:

Name _____ Date _____ Class _____

California Standards SDAP1.3

LESSON 11-2

Practice

Mean, Median, Mode, and Range

Find the mean, median, mode, and range of each data set.

1. 46, 35, 23, 37, 29, 53, 43

2. 72, 56, 47, 69, 75, 48, 56, 57

3. 19, 11, 80, 19, 27, 19, 10, 25, 15

4. 7, 8, 20, 6, 9, 11, 10, 8, 9, 8

5. The line plot shows the number of hours 15 students said they spent on homework in one week. Does the mean or median best describe the data? Justify your answer.

Identify the outlier in each data set. Then determine how the outlier affects the mean, median, and mode of the data.

6. 14, 16, 13, 15, 5, 16, 12

7. 48, 46, 52, 92, 57, 58, 52, 61, 56

Name _____ Date _____ Class _____

California Standards SDAP1.1, SDAP1.3

LESSON 11-3

Practice

Box-and-Whisker Plots

Find the lower and upper quartiles for each data set.

1. 37, 48, 56, 35, 53, 41, 50

lower quartile: _____

upper quartile: _____

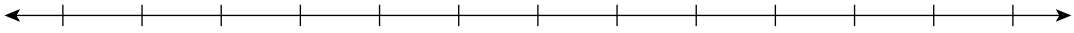
2. 18, 20, 34, 33, 16, 44, 42, 27

lower quartile: _____

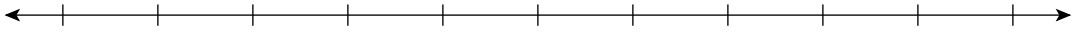
upper quartile: _____

Use the given data to make a box-and-whisker plot.

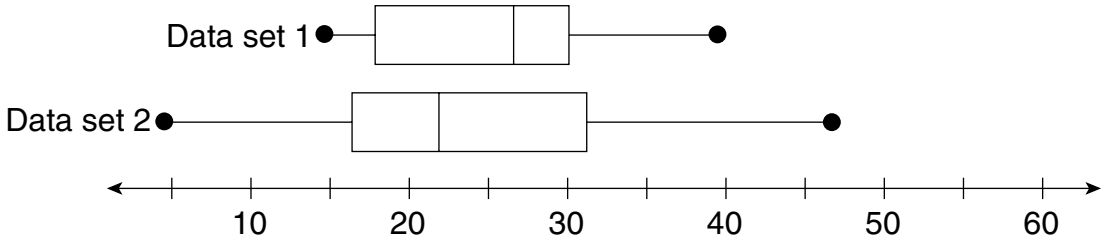
3. 55, 46, 70, 36, 43, 45, 52, 61



4. 23, 34, 31, 16, 38, 42, 45, 30, 28, 25, 19, 32, 53



Use the box-and-whisker plots to compare the data sets.



5. Compare the medians and ranges.

_____

_____

6. Compare the ranges of the middle half of the data for each set.

_____

_____

Name _____ Date _____ Class _____

California Standards SDAP1.2

LESSON 11-4

Practice

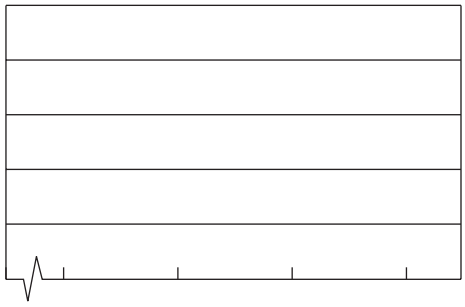
Scatter Plots

1. Use the given data to make a scatter plot.

Tall Buildings in the U.S.

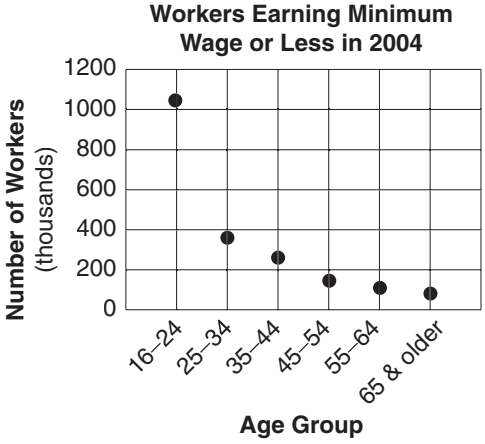
Building	Stories	Height (meters)
Sears Tower	110	442
Empire State Building	102	381
Bank of America Plaza	55	312
Library Tower	75	310
Key Tower	57	290
Columbia Seafirst Center	76	287
NationsBank Plaza	72	281
NationsBank Corporate Center	60	265

Tall Buildings in the U.S.



Write *positive, negative,* or *no correlation* to describe each relationship.

2.



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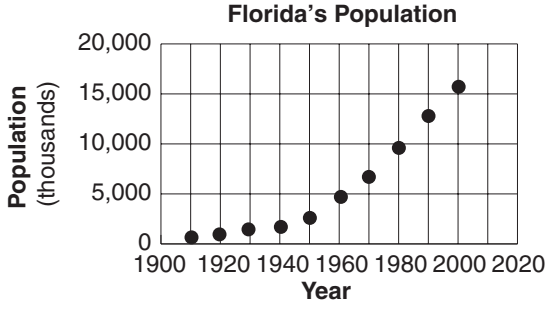

_____

4. Use the data to predict the percent of Americans owning a home in 1955.

Percent of Americans Owning Homes

Year	1950	1960	1970	1980	1990
Percent	55.0%	61.9%	62.9%	64.4%	64.2%

According to the data, about _____% of Americans owned a home in 1955.

Name _____ Date _____ Class _____

California Standards Review of 6SDAP3.3

LESSON 11-5

Practice

Probability

These are the results of the last math test. The teacher determines that anyone with a grade of more than 70 passed the test. Give the probability for the indicated grade.

Grade	65	70	80	90	100
# of Students	5	3	12	10	2

1. *P*(70) _____

2. *P*(100) _____

3. *P*(80) _____

4. *P*(passing) _____

5. *P*(grade > 80) _____

6. *P*(60) _____

7. *P*(failing) _____

8. *P*(grade ≤ 80) _____

A bowling game consists of rolling a ball and knocking up to 5 pins down. The number of pins knocked down are then counted. The table gives the probability of each outcome.

Number of Pins Down	0	1	2	3	4	5
Probability	0.175	0.189	0.264	0.205	0.132	0.035

9. What is the probability of knocking down all 5 pins?

_____

10. What is the probability of knocking down no pins?

_____

11. What is the probability of knocking down at most 2 pins?

_____

12. What is the probability of knocking down at least 2 pins?

_____

13. What is the probability of knocking down more than 3 pins?

_____

Name _____ Date _____ Class _____

California Standards Review of 6SDAP3.2 and 6SDAP3.3

LESSON 11-6

Practice

Experimental Probability

1. A number cube was thrown 150 times. The results are shown in the table below. Estimate the probability for each outcome.

Outcome	1	2	3	4	5	6
Frequency	33	21	15	36	27	18
Probability						

A movie theater sells popcorn in small, medium, large and jumbo sizes. The customers of the first show purchase 4 small, 20 medium, 40 large, and 16 jumbo containers of popcorn. Estimate the probability of the purchase of each of the different size containers of popcorn.

2. *P*(small container) _____

3. *P*(medium container) _____

4. *P*(large container) _____

5. *P*(jumbo container) _____

Janessa polled 154 students about their favorite winter sport.

Outcome	**Frequency**
Skiing	46
Sledding	21
Snowboarding	64
Ice Skating	14
Other	9

6. Use the table to compare the probability that a student chose snowboarding to the probability that a student chose skiing.

_____

7. Use the table to compare the probability that a student chose ice skating to the probability that a student chose sledding.

_____

8. The class president made 75 copies of the flyer advertising the school play. It was found that 8 of the copies were defective. Estimate the probability that a flyer will be printed properly. _____

Name _____ Date _____ Class _____

California Standards Review of 6SDAP3.1, 6SDAP3.3, and 6SDAP3.4

LESSON 11-7

Practice

Theoretical Probability

An experiment consists of rolling one fair number cube. Find the probability of each event.

1. $P(3)$

_____

2. $P(7)$

_____

3. $P(1 \text{ or } 4)$

_____

4. $P(\text{not } 5)$

_____

5. $P(< 5)$

_____

6. $P(> 4)$

_____

7. $P(2 \text{ or odd})$

_____

8. $P(\leq 3)$

_____

An experiment consists of rolling two fair number cubes. Find the probability of each event.

9. $P(\text{total shown} = 3)$

_____

10. $P(\text{total shown} = 7)$

_____

11. $P(\text{total shown} = 9)$

_____

12. $P(\text{total shown} = 2)$

_____

13. $P(\text{total shown} = 4)$

_____

14. $P(\text{total shown} = 13)$

_____

15. $P(\text{total shown} > 8)$

_____

16. $P(\text{total shown} \leq 12)$

_____

17. $P(\text{total shown} < 7)$

_____

18. A bag contains 9 pennies, 8 nickels, and 5 dimes. How many quarters should be added to the bag so the probability of drawing a dime is $\frac{1}{6}$?

_____

19. In a game two fair number cubes are rolled. To make the first move, you need to roll a total of 6, 7, or 8. What is the probability that you will be able to make the first move?

_____

Name _____ Date _____ Class _____

California Standards Review of 6SDAP3.5, 6SDAP3.3, and 6SDAP3.4

LESSON 11-8

Practice

Independent and Dependent Events

Determine if the events are dependent or independent.

1. choosing a tie and shirt from the closet _____
2. choosing a month and tossing a coin _____
3. rolling two fair number cubes once, then rolling them again if you received the same number on both number cubes on the first roll _____

An experiment consists of rolling a fair number cube and tossing a fair coin.

4. Find the probability of getting a 5 on the number cube and tails on the dime. _____
5. Find the probability of getting an even number on the number cube and heads on the dime. _____
6. Find the probability of getting a 2 or 3 on the number cube and heads on the dime. _____

A box contains 3 red marbles, 6 blue marbles, and 1 white marble. The marbles are selected at random, one at a time, and are not replaced. Find the probability.

7. *P*(blue and red) _____
8. *P*(white and blue) _____
9. *P*(red and white) _____
10. *P*(red and white and blue) _____
11. *P*(red and red and blue) _____
12. *P*(red and blue and blue) _____
13. *P*(red and red and red) _____
14. *P*(white and blue and blue) _____
15. *P*(white and red and white) _____

Name _____ Date _____ Class _____

California Standards Preview of and Preparation for 1A10.0; 7AF1.2

LESSON 12-1

Practice

Polynomials

Determine whether each expression is a monomial.

1. $-135x^5$

2. $2.4x^3y^{19}$

3. $\frac{2p^2}{q^3}$

4. $3r^{\frac{1}{2}}$

5. $43a^2b^{6.1}$

6. $\frac{7}{9}x^2yz^5$

Classify each expression as a monomial, a binomial, a trinomial, or not a polynomial.

7. $-8.9xy + \frac{6}{y^5}$

8. $\frac{9}{8}ab^8c^2d$

9. $x^8 + x + 1$

10. $-7pq^{-2}r^4$

11. $5n^{15} - 9n + \frac{1}{3}$

12. $r^8 - 5.5r^{75}$

Find the degree of each polynomial.

13. $7 - 14x$

14. $5a + a^2 + \frac{6}{7}a^3$

15. $7w - 16u + 3v$

16. $9p - 9q - 9p^3 - 9q^2$

17. $z^9 + 10y^8 - x$

18. $100{,}050 + \frac{4}{5}k - k^4$

19. The volume of a box with height x, length $x - 1$, and width $2x + 2$ is given by the binomial $2x^3 - 2x$. What is the volume of the box if its height is 4 feet?

20. The trinomial $-16t^2 + 32t + 32$ describes the height in feet of a ball thrown upward after t seconds. What is the height of the ball $\frac{5}{8}$ seconds after it was thrown?

Name _____ Date _____ Class _____

California Standards Preview of and Preparation for 1A10.0; 7AF1.3

LESSON 12-2

Practice

Simplifying Polynomials

Identify the like terms in each polynomial.

1. $x^2 - 8x + 3x^2 + 6x - 1$

2. $2c^2 + d^3 + 3d^3 - 2c^2 + 6$

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

4. $2 - 9x + x^2 - 3 + x$

5. $xy - 5x + y - x + 10y - 3y^2$

6. $6p + 2p^2 + pq + 2q^3 - 2p$

7. $3a + 2b + a^2 - 5b + 7a$

8. $10m - 3m^2 + 9m^2 - 3m - m^3$

Simplify.

9. $2h - 9hk + 6h - 6k$

10. $9(x^2 + 2xy - y^2) - 2(x^2 + xy)$

11. $7qr - q^2r^3 + 2q^2r^3 - 6qr$

12. $8v^4 + 3v^2 + 2v^2 - 16$

13. $3(x + 2y) + 2(2x - 3y)$

14. $7(1 - x) + 3x^2y + 7x - 7$

15. $6(9y + 1) + 8(2 - 3y)$

16. $a^2b - a^2 + ab^2 - 3a^2b + ab$

17. A student in Tracey's class created the following expression: $y^3 - 3y + 4(y^2 - y^3)$. Use the Distributive Property to write an equivalent expression.

Name _____ Date _____ Class _____

California Standards Preview of 1A10.0; 7AF1.3

LESSON 12-3

Practice

Adding Polynomials

Add.

1. $(a^2 + a + 3) + (15a^2 + 2a + 9)$

2. $(5x + 2x^2) + (3x - 2x^2)$

3. $(mn - 10 + mn^2) + (5 + 3mn - 4mn^2)$

4. $(7y^2z + 9 + yz^2) + (y^2z - 2yz^2)$

5. $(s^3 + 3s - 3) + (2s^3 + 9s - 2) + (s - s^3)$

6. $(6wv - 4w^2v + 7wv^2) + (5w^2v - 7wv^2) + (wv^2 - 5wv + 6w^2v)$

7. $(6b^2c^2 - 4b^2c + 3bc) + (9b^2c^2 - 4bc + 12) + (2b^2c - 3bc - 8)$

8. $(7e^2 + 3e + 2) + (9 - 6e + 4e^2) + (9e + 2 - 6e^2) + (4e^2 - 7e + 8)$

9. $(f^4g - fg^3 + 2fg - 4) + (3fg^3 + 3) + (4f^4g - 5fg) + (3 - 12fg^3 + f^4g)$

10. Six blocks of height $4h + 4$ each and 3 blocks of height $8 - 2h$ each are stacked on top of each other to form one big tower. Find an expression for the overall height of the tower.

Name _____ Date _____ Class _____

California Standards Preview of 1A10.0; 7AF1.3

LESSON 12-4

Practice

Subtracting Polynomials

Find the opposite of each polynomial.

1. $18xy^3$

2. $-9a + 4$

3. $6d^2 - 2d - 8$

Subtract.

4. $(4n^3 - 4n + 4n^2) - (6n + 3n^2 - 8)$

5. $(-2h^4 + 3h - 4) - (2h - 3h^4 + 2)$

6. $(6m + 2m^2 - 7) - (-6m^2 - m - 7)$

7. $(17x^2 - x + 3) - (14x^2 + 3x + 5)$

8. $w + 7 - (3w^4 + 5w^3 - 7w^2 + 2w - 10)$

9. $(9r^3s - 3rs + 4rs^3 + 5r^2s^2) - (2rs^2 - 2r^2s^2 + 6rs + 7r^3s - 9)$

10. $(3qr^2 - 2 + 14q^2r^2 - 9qr) - (-10qr + 11 - 5qr^2 + 6q^2r^2)$

11. The volume of a rectangular prism, in cubic meters, is given by the expression $x^3 + 7x^2 + 14x + 8$. The volume of a smaller rectangular prism is given by the expression $x^3 + 5x^2 + 6x$. How much greater is the volume of the larger rectangular prism?

12. Sarah has a table with an area, in square inches, given by the expression of $y^2 + 30y + 200$. She has a tablecloth with an area, in square inches, given by the expression of $y^2 + 18y + 80$. She wants the tablecloth to cover the top of the table. What expression represents the number of square inches of additional fabric she needs to cover the top of the table?

Name _____ Date _____ Class _____

California Standards Preview of 1A10.0; 7AF1.2, 7AF1.3, 7AF2.2

LESSON 12-5

Practice

Multiplying Polynomials by Monomials

Multiply.

1. $(x^2)(-3x^2y^3)$

2. $(-9pr^4)(p^2r^2)$

3. $(2st^9)(-st^2)$

4. $(3efg^2)(-3e^2f^2g)$

5. $2q(4q^2 - 2)$

6. $-x(x^2 + 2)$

7. $5m(-3m^2 + 2m)$

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

9. $-4st(st - 12t - 2s)$

10. $-9ab(a^2 + 2ab - b^2)$

11. $-7v^2w^2(vw^2 + 2vw + 1)$

12. $8p^4(p^2 - 8p + 17)$

13. $4x(-x^2 - 2xy + 3)$

14. $7x^2(3x^2y + 7x^2 - 2x)$

15. $-4t^3r^2(3t^2r - t^5r - 6t^2r^2)$

16. $h^2k(2hk^2 - hk + 7k)$

17. A triangle has a base of $4x^2$ and a height of $6x + 3$. Write and simplify an expression for the area of the triangle.

Name _____ Date _____ Class _____

California Standards Preview of 1A10.0

LESSON 12-6

Practice

Multiplying Binomials

Multiply.

1. $(z + 1)(z + 2)$ _____

2. $(1 - y)(2 - y)$ _____

3. $(2x + 1)(2x + 4)$ _____

4. $(w + 1)(w - 3)$ _____

5. $(3v + 1)(v - 1)$ _____

6. $(t + 2)(2t - 2)$ _____

7. $(-3g + 4)(2g - 1)$ _____

8. $(3c + d)(c - 2d)$ _____

9. $(2a + b)(a + 2b)$ _____

10. A box is formed from a 1 in. by 18 in. piece of cardboard by cutting a square with side length m inches out of each corner and folding up the sides. Write and simplify an expression for the area of the base of the box.

_____

11. A table is placed in a 14 ft × 18 ft room so that there is an equal amount of space of width s feet all the way around the table. Write and simplify an expression for the area of the table.

_____

12. A circular swimming pool with a radius of 14 ft is surrounded by a deck with width y feet. Write and simplify an expression for the total area of the pool and the deck. Use $\frac{22}{7}$ for pi.

_____

Multiply.

13. $(r - 2)^2$ _____

14. $(2 + q)^2$ _____

15. $(p + 4)(p - 4)$ _____

16. $(3n - 3)(3n + 3)$ _____

17. $(a + b)(a - b)$ _____

18. $(4e - f)^2$ _____

19. $(2y + z)^2$ _____

20. $(9p - 2)(-2 + 9p)$ _____

21. $(m - 1)^2$ _____