

Name:
Instructor:

Date:
Section:

Additional Exercises 3.1

Simplify each expression by combining like terms.

1. $5x - 4x$

1. _____

2. $7y + 8y$

2. _____

3. $6b + 10b - b - 7b$

3. _____

4. $-5a + 2a - 9a + 16 - (-2a)$

4. _____

Multiply.

5. $2(6x - 8)$

5. _____

6. $-5(2y - 7)$

6. _____

7. $6(7x)$

7. _____

8. $3(y + 4)$

8. _____

9. $-(3x - 4)$

9. _____

Simplify each expression. Use the distributive property to remove parentheses first.

10. $4(x - 6)$

10. _____

11. $-5z + 7(2 - 3z)$

11. _____

12. $2(5n - 6) + 3n$

12. _____

13. $-8 + 2(n - 4) + 5(n - 1)$

13. _____

14. $-3(5w + 1) - 6w$

14. _____

15. $5(2x - 3) - 7x$

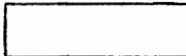
15. _____

16. $-3(n - 1) - 6n$

16. _____


17. $8z - (5z - 2)$

17. _____

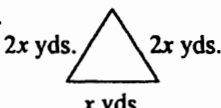
18. Find the perimeter.  x feet

18. _____

$2x - 3$ feet

19. Find the perimeter.  $(4y)$ cm

19. _____

20. Find the perimeter.  $2x$ yds. $2x$ yds. x yds.

20. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 3.2

Solve.

1. $y + 3 = 8$

1. _____

2. $x - 6 = 5 + (-4)$

2. _____

3. $x - 11 = -5$

3. _____

4. $-7 = x - 2$

4. _____

5. $3x = 27$

5. _____

6. $-10x = 80$

6. _____

7. $-5x = -35$

7. _____

Solve. First combine any like terms on each side of the equation.

8. $6x + 2x = 32$

8. _____

9. $24 = 10x - 6x$

9. _____

10. $2x - 7x = 40$

10. _____

11. $5 - 17 = -y$

11. _____

12. $5x = 0$

12. _____

13. $3y = -51$

13. _____

14. $8x - 17x = 13 + (-13)$

14. _____

15. $5x + 2x = 18$

15. _____

16. $-64 = -4y + 12y$

16. _____

Translate into a mathematical expression.

17. Twice the sum of a number and 6.

17. _____

18. The sum of a number and twice the number.

18. _____

19. The quotient of three times a number and seven.

19. _____

20. The product of 13 and a number added to 33.

20. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 3.3

Solve each equation.

1. $3x - 21 = 0$

1. _____

2. $-7x + 9 = 37$

2. _____

3. $-8 = 3y + 1$

3. _____

4. $3 - n = 21$

4. _____

5. $7x + 17 = -32$

5. _____

6. $16 = 2y + 8$

6. _____

7. $9x - 3 = 6x + 15$

7. _____

8. $7x - 8 = 5x + 10$

8. _____

9. $12y - 11y = 18 - (-4)$

9. _____

10. $6 - 8m = -3m + 26$

10. _____

11. $3(x + 2) = 2x - 7$

11. _____

12. $7 - 3 = x + 4$

12. _____

13. $2(x - 5) = 26$

13. _____

14. $-2(x - 3) = -8$

14. _____

15. $4t - 7 = 5(t - 11)$

15. _____

16. $8(3 + x) = 7(x + 3)$

16. _____

Write each sentence as an equation and solve.

17. The sum of -38 and a number is -21 .

17. _____

18. Twice the difference of 7 and a number yields 14 .

18. _____

19. The product of -3 and 4 plus a number is -33 .

19. _____

20. The quotient of 120 and ten is twice a number.

20. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 3.4

Write each phrase as a variable expression. Use x to represent "a number."

1. The sum of a number and six. 1. _____

2. The difference of a number and seven. 2. _____

3. The product of negative three and a number. 3. _____

4. The quotient of eleven and a number. 4. _____

5. Twenty decreased by twice a number. 5. _____

6. The sum of nine and a number subtracted from six times the number. 6. _____

7. The quotient of two and a number, decreased by five. 7. _____

8. A number divided by 5 added to three. 8. _____

Write each sentence as an equation. Use x to represent "a number." Solve.

9. A number added to 10 is -30 . 9. _____

10. Four subtracted from a number equals 12. 10. _____

11. The quotient of a number and 11 is -33 . 11. _____

12. Six added to twice a number gives -14 . 12. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 3.4 (cont.)

Solve.

13. A number less 7 is 31. Find the number.

13. _____

14. Six times a number added to -10 is -16 . Find the number.

14. _____

15. The sum of 5, 2 and a number amounts to 4. Find the number.

15. _____

16. Twice the difference of a number and 3 is equal to 48. Find the number.

16. _____

17. The product of 5 and a number is the same as 3 times the number plus six. Find the number.

17. _____

18. A bicyclist is traveling twice as fast as someone walking. If their combined speed is 21 miles per hour, find the speed of the person walking.

18. _____

19. During the Student Government Association elections, one candidate received 38 more votes for Senator than the other candidate. If the total number of votes cast for the two candidates was 164, how many votes did each candidate get?

19. _____

20. A washing machine with installation costs \$420. If the washing machine costs 5 times as much as the installation, find the cost of installation.

20. _____

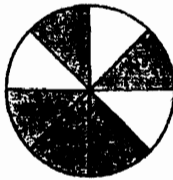
Name:
Instructor:

Date:
Section:

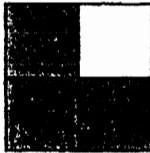
Additional Exercises 4.1

Write a fraction to represent the shaded part of each figure.

1.



2.



Simplify by dividing.

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

4. $\frac{-12}{-12}$

5. $\frac{5}{5}$

6. $\frac{6}{1}$

7. $\frac{0}{-4}$

8. $\frac{8}{0}$

Write each mixed number as an improper fraction.

9. $3\frac{1}{4}$

10. $7\frac{5}{6}$

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.1 (cont.)

11. $2\frac{4}{7}$

11. _____

12. $17\frac{2}{3}$

12. _____

Write each improper fraction as a mixed number or a whole number.

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

13. _____

14. $\frac{32}{9}$

14. _____

15. $\frac{78}{7}$

15. _____

16. $\frac{96}{12}$

16. _____

17. $\frac{191}{172}$

17. _____

18. $\frac{6}{3}$

18. _____

19. In a family of 8 children, there are 3 boys and 5 girls. What fraction of the children are boys?

19. _____

20. In a math class of 27 students, 5 are boys. What fraction of the class are boys?

20. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.2

Find the prime factorization of each number. Write any repeated factors using exponents.

1. 21

1. _____

2. 130

2. _____

3. 30

3. _____

4. 186

4. _____

5. 112

5. _____

6. 238

6. _____

7. 624

7. _____

8. 936

8. _____

Simplify each fraction.

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

9. _____

10. $\frac{30x}{45}$

10. _____

11. $\frac{27x}{60xy}$

11. _____

12. $\frac{40xy}{15y}$

12. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.2 (cont.)

13. $\frac{18x}{45}$

13. _____

14. $\frac{36abc^2}{60ab^2c}$

14. _____

15. $\frac{-20x}{40xy}$

15. _____

Determine whether each pair of fractions is equivalent.

16. $\frac{2}{3}$ $\frac{4}{6}$

16. _____

17. $\frac{3}{5}$ $\frac{25}{45}$

17. _____

18. $\frac{8}{12}$ $\frac{10}{15}$

18. _____

19. There are 5280 feet in a mile. What fraction of a mile is represented by 280 feet?

19. _____

20. A work shift is 8 hours. What fraction of a 24 hour day does this shift represent?

20. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.3

Multiply. Write each answer in simplest form.

1. $\frac{2}{3} \cdot \frac{5}{8}$

1. _____

2. $\frac{5}{8} \cdot \frac{1}{15}$

2. _____

3. $\frac{2}{9} \cdot \frac{3}{12}$

3. _____

4. $\frac{5}{8} \cdot \frac{16}{15}$

4. _____

5. $\frac{1}{4} \cdot \frac{2}{5}$

5. _____

6. $\frac{3}{y^2} \cdot \frac{y}{9}$

6. _____

Divide. Write each answer in simplest form.

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

7. _____

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

8. _____

9. $\frac{4}{5} \div \frac{1}{5}$

9. _____

10. $\frac{6}{7} \div \frac{1}{6}$

10. _____

11. $\frac{2}{5} \div \frac{3}{5}$

11. _____

12. $\frac{1}{5} \div \frac{5}{1}$

12. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.3 (cont.)

Evaluate.

13. xy if $x = -\frac{1}{2}$ and $y = \frac{1}{4}$.

13. _____

14. $x + y$ if $x = \frac{2}{3}$ and $y = \frac{3}{5}$.

14. _____

Determine whether the given replacement value is a solution to the given equation.

15. Is $\frac{2}{3}$ a solution to $6x = 4$?

15. _____

16. Is 10 a solution to $\frac{3}{5}x = \frac{2}{3}$?

16. _____

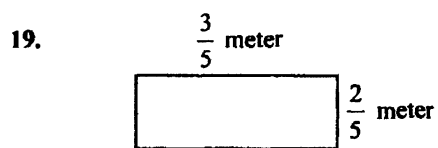
17. A flight attendant can purchase a ticket for $\frac{2}{3}$ of the regular price. If the regular price of a particular trip is \$324, what will the attendant pay?

17. _____

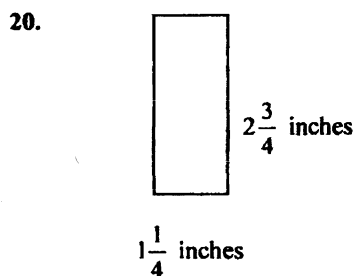
18. A picture frame's width is $\frac{2}{3}$ of the frame's length. What is the width if the length is 18 inches?

18. _____

Find the area of each rectangle.



19. _____



20. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.4

Add or subtract as indicated and simplify your answer.

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

1. _____

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

2. _____

3. $\frac{3}{11} + \frac{8}{11}$

3. _____

4. $\frac{7}{30} + \frac{11}{30}$

4. _____

5. $\frac{7}{10} - \frac{3}{10}$

5. _____

6. $\frac{6}{13} - \frac{2}{13}$

6. _____

7. $\frac{11}{26} - \frac{7}{26}$

7. _____

8. $\frac{1}{17} + \frac{3}{17} + \frac{5}{17}$

8. _____

9. $\frac{7}{19} + \frac{4}{19} + \frac{3}{19}$

9. _____

10. $\frac{7}{15} - \frac{4}{15}$

10. _____

11. Evaluate $x + y$ for $x = \frac{2}{4}$ and $y = \frac{1}{4}$.

11. _____

12. Evaluate $x - y$ for $x = \frac{9}{10}$ and $y = \frac{7}{10}$.

12. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.4 (cont.)

Find the LCD of each list of fractions.

13. $\frac{7}{9}, \frac{5}{12}$

13. _____

14. $\frac{6}{y}, \frac{3}{4}$

14. _____

Write each fraction as an equivalent fraction with the given denominator.

15. $\frac{3}{8} = \frac{\quad}{24}$

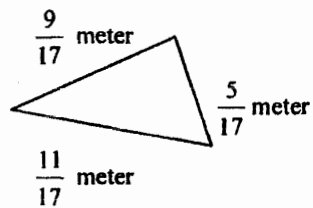
15. _____

16. $\frac{3}{4} = \frac{\quad}{12a}$

16. _____

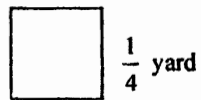
17. Find the perimeter of the triangle.

17. _____



18. Find the perimeter of the square.

18. _____



19. A recipe for banana bread calls for $\frac{1}{4}$ cup milk and $\frac{3}{4}$ cup water. How much liquid is needed for this recipe?

19. _____

20. A recipe for cookies is doubled to save time. The original recipe calls for $2\frac{1}{2}$ cups of sugar. How much sugar is needed for the recipe when it is doubled?

20. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.5

Add or subtract.

1. $-\frac{5}{7} + \frac{1}{3}$

1. _____

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

2. _____

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

3. _____

4. $\frac{11}{35} + \frac{2x}{7}$

4. _____

5. $2y - \frac{1}{12}$

5. _____

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

6. _____

7. $\frac{3}{16} + \frac{1}{16} - \frac{5}{16}$

7. _____

8. $-\frac{2}{5} + \frac{1}{5} + \frac{3}{10}$

8. _____

9. $\frac{x}{5} + \frac{x}{4} + \frac{1}{4}$

9. _____

10. $\frac{3}{8} + \frac{5}{12x}$

10. _____

Evaluate the expression when $x = \frac{1}{3}$ and $y = \frac{1}{4}$.

11. $x + y$

11. _____

12. $3x - y$

12. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.5 (cont.)

13. $(xy)^3$

14. $x \div y$

15. $2(x \cdot y)$

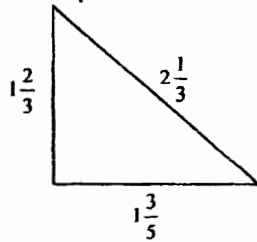
Insert $<$, $>$, or $=$ to form a true statement.

16. $\frac{3}{7}$ $\frac{9}{21}$

17. $-\frac{3}{5}$ $-\frac{3}{4}$

18. $\frac{12}{16}$ $\frac{18}{24}$

19. Find the perimeter of the triangle.



20. Out of 150 students, $\frac{1}{3}$ are freshmen. Find the number of freshmen.

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

20. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.6

Simplify each complex fraction.

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

1. _____

2. $\frac{\frac{2}{3}}{\frac{3}{5}}$

2. _____

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

3. _____

4. $\frac{\frac{2x}{7}}{\frac{4}{5}}$

4. _____

Simplify.

5. $2^3 - \left(\frac{1}{3}\right)^2$

5. _____

6. $\left(\frac{2}{3}\right)^3$

6. _____

7. $\left(\frac{1}{3}\right)^2 - \frac{2}{9}$

7. _____

8. $\left(\frac{1}{3} - \frac{1}{15}\right)\left(\frac{1}{5} + \frac{1}{3}\right)$

8. _____

9. $\left(\frac{1}{3}\right)^3 \div \frac{4}{9}$

9. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.6 (cont.)

10. $\left(\frac{1}{2}\right)^2 + \left(\frac{1}{4}\right)^2$

10. _____

11. $\left(\frac{1}{2} + \frac{1}{4}\right)^2$

11. _____

Evaluate the expression if $x = -\frac{1}{2}$, $y = \frac{1}{3}$, and $z = \frac{1}{4}$.

12. $x + y$

12. _____

13. $2x - y$

13. _____

14. x^2

14. _____

15. $\frac{x+y}{z}$

15. _____

16. $\frac{x}{z}$

16. _____

17. $2y$

17. _____

18. Simplify. $\frac{\frac{3}{10} + \frac{1}{2}}{\frac{1}{5} + \frac{1}{2}}$

18. _____

True or False?

19. The sum of two negative fractions is always a negative number.

19. _____

20. The product of two negative fractions is always a negative number.

20. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.7

Multiply or divide.

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

2. $2\frac{3}{8} \times 1\frac{1}{6}$

3. $3\frac{1}{3} \cdot 1\frac{3}{5}$

4. $\frac{7}{9} \div 2\frac{1}{3}$

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

6. $\left(3\frac{2}{5}\right)\left(1\frac{1}{7}\right)$

7. $\left(\frac{2}{3}\right)\left(2\frac{4}{5}\right)$

8. $\left(2\frac{2}{3}\right) \div \left(\frac{1}{5}\right)$

9. $\left(\frac{5}{9}\right) + \left(\frac{4}{9}\right)$

Add or subtract

10. $8\frac{2}{3} + 4\frac{1}{4}$

11. $3\frac{1}{8} + 4\frac{1}{2}$

12. $8\frac{3}{5} - 2\frac{1}{4}$

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.7 (cont.)

13. $7\frac{1}{3} - 4\frac{2}{5}$

13. _____

14. $18\frac{3}{5} - 17\frac{5}{6}$

14. _____

Add or subtract.

15. $2\frac{1}{3} + 4\frac{1}{2}$

15. _____

16. $6\frac{2}{3} + 3\frac{1}{9}$

16. _____

17. $6\frac{2}{3} - 3\frac{1}{3}$

17. _____

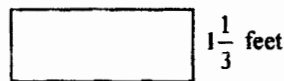
18. $9\frac{3}{5} - 8\frac{1}{5}$

18. _____

19. Find the area of the rectangle with width $1\frac{1}{3}$ feet and length

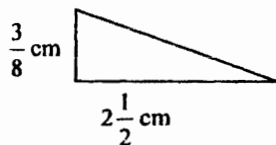
$2\frac{2}{3}$ feet. Use the formula $A = \ell w$. $2\frac{2}{3}$ feet

19. _____



20. Find the area of the triangle. Use the formula $A = \frac{1}{2}bh$.

20. _____



Name:
Instructor:

Date:
Section:

Additional Exercises 4.8

Solve each equation.

1. $2x = -5$

1. _____

2. $5x = 8$

2. _____

3. $\frac{1}{3}x = 5$

3. _____

4. $-\frac{2}{5}x = -10$

4. _____

5. $-\frac{4}{9}y = \frac{2}{3}$

5. _____

6. $\frac{11}{13}x = \frac{1}{26}$

6. _____

7. $\frac{x}{2} + 3 = \frac{7}{3}$

7. _____

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

8. _____

9. $\frac{2}{3} = \frac{x}{12}$

9. _____

10. $\frac{1}{2} - \frac{1}{5} = \frac{x}{10}$

10. _____

Name:
Instructor:

Date:
Section:

Additional Exercises 4.8 (cont.)

Add or subtract.

11. $\frac{x}{7} - \frac{1}{3}$

11. _____

12. $3 - \frac{4x}{3}$

12. _____

13. $\frac{3x}{5} + \frac{x}{5}$

13. _____

14. $\frac{3x}{5} + \frac{x}{10}$

14. _____

15. $\frac{y}{3} + 2$

15. _____

Solve.

16. $\frac{2}{3}x = \frac{1}{2}$

16. _____

17. $\frac{2}{5}y = \frac{1}{10}$

17. _____

18. $\frac{2}{3} - \frac{x}{5} = \frac{4}{15}$

18. _____

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

19. _____

20. $\frac{x}{2} - x = -2$

20. _____