

**LESSON
6.1****Practice B**

For use with pages 372–379

Simplify the ratio.

1. \$12:\$16

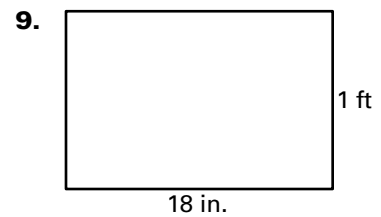
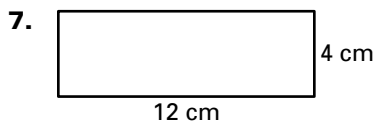
2. $\frac{32 \text{ in.}^2}{8 \text{ in.}^2}$

3. $\frac{6 \text{ cm}}{14 \text{ cm}}$

4. $\frac{10 \text{ in.}}{2 \text{ ft}}$

5. 3 gallons : 10 quarts

6. 28 oz : 2 lb

Find the ratio of the width to the length of the rectangle. Then simplify the ratio.**Use the number line to find the ratio of the distances.**

10. $\frac{AB}{CF}$

11. $\frac{BF}{CD}$

12. $\frac{DE}{AC}$

13. $\frac{BE}{AD}$

14. **Perimeter** The perimeter of a rectangle is 56 inches. The ratio of the length to the width is 6 : 1. Find the length and the width.

15. **Area** The area of a rectangle is 525 square centimeters. The ratio of the length to the width is 7 : 3. Find the length and the width.

The measures of the angles of a triangle are in the extended ratio given. Find the measures of the angles of the triangle.

16. 1 : 7 : 10

17. 5 : 6 : 7

18. 7 : 14 : 15

Solve the proportion.

19. $\frac{4}{5} = \frac{x}{15}$

20. $\frac{5}{8} = \frac{20}{y}$

21. $\frac{z+2}{4} = \frac{27}{12}$

22. $\frac{3}{x} = \frac{1}{x-6}$

23. $\frac{3}{m+5} = \frac{2}{m+1}$

24. $\frac{2}{k-1} = \frac{5}{3k-4}$

LESSON
6.1**Practice B** *continued**For use with pages 372–379***Find the geometric mean of the two numbers.**

25. 2 and 8

26. 3 and 9

27. 7 and 14

28. 8 and 16

29. 10 and 12

30. 9 and 13

Let $x = 6$, $y = 3$, and $z = 2$. Write the ratio in simplest form.

31. $\frac{2x + y}{3}$

32. $\frac{4z - 3}{x}$

33. $\frac{z + 2y}{2x - 4}$

Solve the proportion.

34. $\frac{12}{x} = \frac{x}{4}$

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

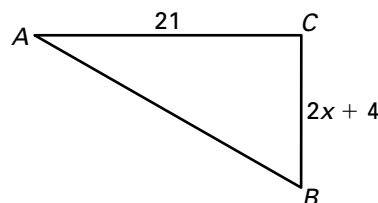
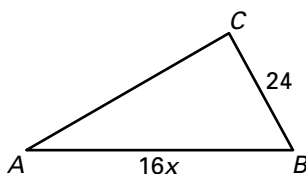
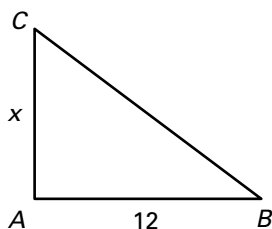
36. $\frac{8}{z - 2} = \frac{z + 2}{4}$

In Exercises 37–39, the ratio of two side lengths for the triangle is given. Solve for the variable.

37. $AC:AB$ is 3 : 4.

38. $AB:CB$ is 2 : 1.

39. $AC:BC$ is 7 : 4.



40. **Area** The perimeter of the rectangular front lawn of the library is 192 feet. The ratio of the length to the width is 5 : 3. Find the area of the lawn.

In Exercises 41 and 42, use the following information.

Golden Gate Bridge You purchase a scale model of the Golden Gate Bridge, which is located near San Francisco, California. The model states that the scale is 1 inch : 50 feet. The actual length of the bridge is 8980 feet.

41. What is the length of the model?
42. The model is approximately 15 inches tall. What is the actual height of the bridge?



Lesson 6.1**Practice Level A**

1. $\frac{1}{2}$ 2. $\frac{1}{12}$ 3. $\frac{2}{5}$ 4. 4:1 5. 10:9 6. 8:25
 7. $\frac{2 \text{ cm}}{4 \text{ cm}} = \frac{1}{2}$ 8. $\frac{18 \text{ in.}}{2 \text{ ft}} = \frac{3}{4}$ 9. $\frac{1}{3}$ 10. $\frac{2}{3}$ 11. $\frac{7}{2}$
 12. $\frac{4}{1}$ 13. $l = 15 \text{ in.}, w = 10 \text{ in.}$
 14. $l = 200 \text{ ft}, w = 40 \text{ ft}$ 15. $l = 16 \text{ cm}, w = 2 \text{ cm}$ 16. $60^\circ, 60^\circ, 60^\circ$ 17. $45^\circ, 45^\circ, 90^\circ$
 18. $40^\circ, 60^\circ, 80^\circ$ 19. $x = 4$ 20. $y = 9$
 21. $z = 5$ 22. $a = 24$ 23. $b = 24$ 24. $c = 54$
 25. $x = 7$ 26. $x = 8$ 27. $x = 18$ 28. 2 29. 3
 30. 6 31. 10 32. $2\sqrt{6}$ 33. $3\sqrt{5}$ 34. $x = 15$
 35. $a = 3$ 36. $d = 10$ 37. 5:12
 38. $l = 147 \text{ ft}, w = 49 \text{ ft}$ 39. 625
 40. 3234, 4312, 5390 41. 511:500
 42. a. 14.625 in. b. about 23.1 in. c. 4:3

Practice Level B

1. 3:4 2. $\frac{4}{1}$ 3. $\frac{3}{7}$ 4. $\frac{5}{12}$ 5. 6:5 6. $\frac{7}{8}$
 7. $\frac{4 \text{ cm}}{12 \text{ cm}}, \frac{1}{3}$ 8. $\frac{6 \text{ in.}}{10 \text{ in.}}, \frac{3}{5}$ 9. $\frac{12 \text{ in.}}{18 \text{ in.}}, \frac{2}{3}$ 10. $\frac{1}{2}$
 11. $\frac{4}{1}$ 12. $\frac{1}{5}$ 13. $\frac{5}{7}$ 14. 24 in., 4 in.
 15. 35 cm, 15 cm 16. $10^\circ, 70^\circ, 100^\circ$
 17. $50^\circ, 60^\circ, 70^\circ$ 18. $35^\circ, 70^\circ, 75^\circ$ 19. 12
 20. 32 21. 7 22. 9 23. 7 24. 3 25. 4
 26. $3\sqrt{3}$ 27. $7\sqrt{2}$ 28. $8\sqrt{2}$ 29. $2\sqrt{30}$
 30. $3\sqrt{13}$ 31. $\frac{5}{1}$ 32. $\frac{5}{6}$ 33. $\frac{1}{1}$ 34. $\pm 4\sqrt{3}$
 35. 4 36. ± 6 37. 9 38. 3 39. 4 40. 2160 ft^2
 41. 179.6 in. 42. 750 ft

Practice Level C

1. 1:64 2. 1:8 3. 1:7,884,000 4. 7:2200
 5. 20:19 6. 3:5 7. 19:24 8. 5:4 9. 5:7
 10. 27:20 11. 3:4 12. $l = 42 \text{ cm}, w = 24 \text{ cm}$
 13. $l = 77 \text{ ft}, w = 63 \text{ ft}$ 14. $l = 119 \text{ yd}, w = 91 \text{ yd}$ 15. $30^\circ, 75^\circ, 75^\circ$ 16. $27^\circ, 63^\circ, 90^\circ$
 17. $28^\circ, 64^\circ, 88^\circ$ 18. $x = 28$ 19. $a = 15$
 20. $y = 26$ 21. $z = 3$ 22. $b = 10$ 23. $s = \pm 12$
 24. $d = 5$ 25. $x = 14$ 26. $x = 16$ 27. $y = 39 \text{ m}$
 28. $z = 12$ 29. $b = 70, c = 30$ 30. 12 31. 14

32. $4\sqrt{3}$ 33. $6\sqrt{3}$ 34. $15\sqrt{3}$ 35. 24

36. $l = 24 \text{ ft}, w = 8 \text{ ft}$ 37. $l = 21 \text{ yd}, w = 14 \text{ yd}$

38. $a = 4$ 39. $a = -1$ 40. If the width of the larger rectangle is the same as the length of the smaller rectangle, then this length is the geometric mean of the length of the larger rectangle and the width of the smaller rectangle. 41. 26 oz

42. 9187.5 43. a. \$17.54 b. 67.20 c. 18.42

Review for Mastery

1. $\frac{20}{17}$ 2. 5:1 3. $30^\circ, 54^\circ,$ and 96°
 4. $a = 20$ 5. $x = 35$ 6. $y = 21$ 7. 9 8. $10\sqrt{2}$
 9. $3\sqrt{10}$

Challenge Practice

1. -8, -1 2. $-\frac{1}{3}, 6$ 3. $\frac{7}{3}, 0$ 4. $\frac{7}{25}, 2$
 5. $x = 5, y = 2$ 6. $x = -3$ and $y = 10$ or $x = -6.4$ and $y = -7$

7. $x = 1$ and $y = 4$ or $x = -\frac{1}{6}$ and $y = \frac{19}{24}$
 8. 20 cm

9. $12 + 6\sqrt{2}$ in. 10. 24.5 cm

11. $\frac{a}{b} = \frac{c}{d}$ implies $ad = bc$.

$$\frac{a}{b} = \frac{e}{f} \text{ implies } af = be.$$

$ab = ba$ by the Symmetric property of equality

Then $ab + ad + af = ba + bc + be$

$$a(b + d + f) = b(a + b + e)$$

$$\frac{a}{b}(b + d + f) = (a + b + e)$$

$$\frac{a}{b} = \frac{a + b + e}{b + d + f}$$

12. a. 7.9 in. by 11.1 in. b. about 158%

c. No; *Sample answer:* the percent change in area accounts for the percent change in the length and the width so it is larger.

Lesson 6.2**Practice Level A**

1. $\frac{y}{x}$ 2. $\frac{x}{y}$ 3. $\frac{9+y}{y}$ 4. $\frac{16}{11}$ 5. true 6. false
 7. true 8. true 9. $\frac{6}{10} = \frac{3}{x}$ 10. $\frac{10}{6} = \frac{x}{3}$
 11. $\frac{6}{3} = \frac{10}{x}$ 12. $\frac{16}{10} = \frac{3+x}{x}$ 13. $\frac{2}{3}$ 14. 8
 15. 16 16. 30 17. 15 mi 18. 20 mi