Name _____ Date _____

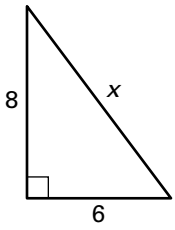
LESSON 7.1

# Practice A

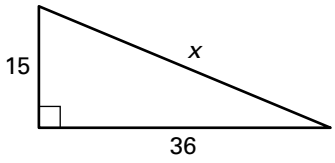
*For use with pages 450–457*

**Find the length of the hypotenuse of the right triangle.**

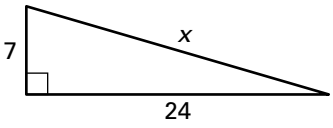
**1.**



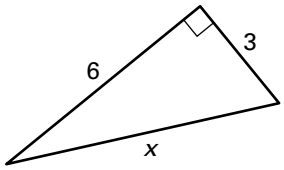

**2.**



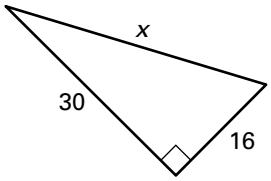

**3.**



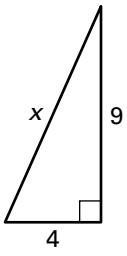

**4.**




**5.**

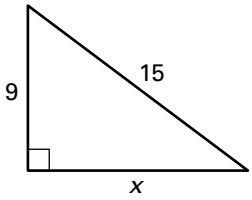



**6.**

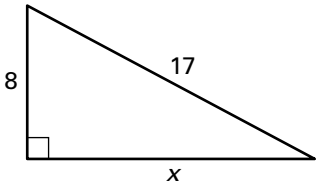



**Find the unknown leg length *x*. Check that your answer is reasonable.**

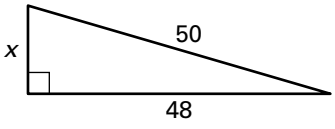
**7.**




**8.**

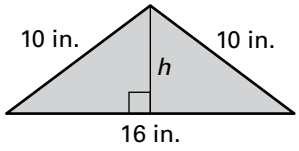



**9.**

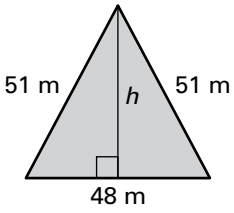



**Find the area of the isosceles triangle.**

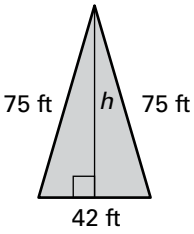
**10.**




**11.**




**12.**




**13.** **Multiple Choice** What is the length of the hypotenuse of a right triangle with leg lengths of 5 inches and 12 inches?

**A.** 11 inches **B.** 13 inches **C.** 15 inches **D.** 17 inches

**The given lengths are two sides of a right triangle. All three side lengths of the triangle are integers and together form a Pythagorean triple. Find the length of the third side and tell whether it is a leg or the hypotenuse.**

**14.** 30 and 40

**15.** 15 and 36

**16.** 70 and 250

**17.** 45 and 51

**18.** 15 and 20

**19.** 96 and 100

Name _____ Date _____

LESSON 7.1

# Practice A *continued*

*For use with pages 450–457*

**Find the area of a right triangle with given leg $\ell$ and hypotenuse $h$. Round decimal answers to the nearest tenth.**

**20.** $\ell = 12$ cm, $h = 15$ cm

**21.** $\ell = 10$ ft, $h = 24$ ft

**22.** $\ell = 14$ in., $h = 50$ in.

**23.** $\ell = 15$ mi, $h = 39$ mi

**24.** $\ell = 21$ in., $h = 72$ in.

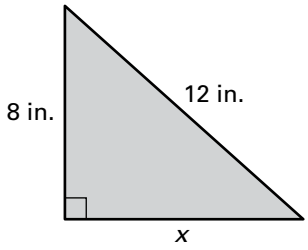
**25.** $\ell = 45$ m, $h = 51$ m

**26.** **Multiple Choice** What is the area of a right triangle with a leg length of 30 meters and a hypotenuse length of 34 meters?

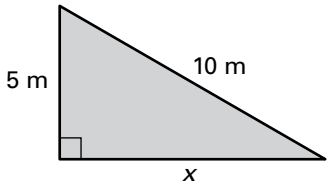
**A.** 180 $m^2$ **B.** 200 $m^2$ **C.** 220 $m^2$ **D.** 240 $m^2$

**Find the area of the right triangle. Write your answer in simplest radical form.**

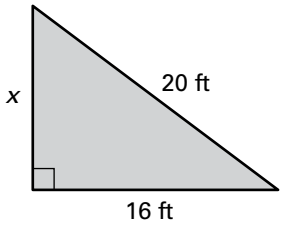
**27.**




**28.**




**29.**




**30.** **Ladder** A 20 foot ladder is resting against the side of a house. The base of the ladder is 4 feet away from the house. Approximately how high above the ground does the ladder touch the house?

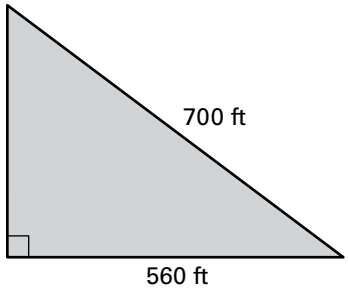
**In Exercises 31–33, use the following information.**

**Real Estate** An investor owns a triangular plot of land as shown in the diagram.

**31.** Find the perimeter of the plot of land.

**32.** One acre of land is equivalent to 43,560 square feet. How many acres are in this plot of land? Round to two decimal places.

**33.** The investor is planning on selling the land. The market rate in this area is $5000 per acre. How much should the investor ask for the land?



# Answers

## *Lesson 7.1*

### Practice Level A

**1.** 10 **2.** 39 **3.** 25 **4.** $3\sqrt{5}$ **5.** 34 **6.** $\sqrt{97}$
**7.** 12 **8.** 15 **9.** 14 **10.** 48 in.$^2$ **11.** 1080 m$^2$
**12.** 1512 ft$^2$ **13.** B **14.** 50; hypotenuse
**15.** 39; hypotenuse **16.** 240; leg **17.** 24; leg
**18.** 25; hypotenuse **19.** 28; leg **20.** 54 cm$^2$
**21.** 109.1 ft$^2$ **22.** 336 in.$^2$ **23.** 270 mi$^2$
**24.** 723.1 in.$^2$ **25.** 540 m$^2$ **26.** D
**27.** $16\sqrt{5}$ in.$^2$ **28.** $\frac{25\sqrt{3}}{2}$ m$^2$ **29.** 96 ft$^2$
**30.** 19.6 ft **31.** 1680 ft **32.** 2.70 **33.** $13,500

### Practice Level B

**1.** true **2.** true **3.** false **4.** false **5.** true
**6.** true **7.** $2\sqrt{3}$; no **8.** 5; yes **9.** $\sqrt{61}$; no
**10.** 26; yes **11.** 8; no **12.** $3\sqrt{21}$; no **13.** 9; leg
**14.** 37; hypotenuse **15.** 16; leg
**16.** 53; hypotenuse **17.** 33; leg **18.** 21; leg
**19.** 39; leg **20.** 73; hypotenuse
**21.** 97; hypotenuse **22.** 55.4 m$^2$ **23.** 35.7 yd$^2$
**24.** 14.5 ft$^2$ **25.** 19.6 mi$^2$ **26.** 210 in.$^2$
**27.** 71.2 cm$^2$ **28.** 25 ft$^2$ **29.** 45.3 cm$^2$
**30.** 217 in.$^2$ **31.** 1056 m$^2$ **32.** 32 in.$^2$
**33.** 312 ft$^2$ **34.** about 95 ft
**35.** $400 + 100\sqrt{2} \approx 541.4$ mi,
$400 - 100\sqrt{2} \approx 258.6$ mi **36.** 330 in.
**37.** 22 posts **38.** $46.75; There are 22 posts, so buying 22 posts costs $1.25(22) = $27.50. The perimeter of the garden is 330 inches, or 27.5 feet, so the fencing costs $.70(27.5) = $19.25. The combined cost is $27.50 + $19.25 = $46.75.

### Practice Level C

**1.** 51 **2.** $5\sqrt{13}$ **3.** $4\sqrt{73}$ **4.** $\sqrt{301}$ **5.** $18\sqrt{2}$
**6.** $6\sqrt{13}$ **7.** $7\sqrt{51}$ in.$^2$ **8.** $96\sqrt{85}$ m$^2$
**9.** $\frac{375\sqrt{51}}{4}$ ft$^2$ **10.** B **11.** 40; hypotenuse
**12.** 51; hypotenuse **13.** 75; leg
**14.** 175; hypotenuse **15.** 30; leg **16.** 135; leg
**17.** 90.1 cm$^2$ **18.** 155.8 ft$^2$ **19.** 155.0 in.$^2$
**20.** 116.6 mi$^2$ **21.** 238.1 in.$^2$ **22.** 779.4 m$^2$
**23.** C **24.** $\frac{7\sqrt{51}}{2}$ in.$^2$ **25.** $48\sqrt{10}$ m$^2$
**26.** $352\sqrt{3}$ ft$^2$ **27.** $8\sqrt{2}$ **28.** $2\sqrt{22}$
**29.** $2\sqrt{127}$ **30.** 35 in. **31.** 400 ft and 750 ft
**32.** 571.9 ft **33.** 0.29 **34.** 48

### Review for Mastery

**1.** leg; 30 **2.** hypotenuse; $3\sqrt{13}$
**3.** hypotenuse; 52 **4.** leg; $20\sqrt{6}$ **5.** leg; $5\sqrt{3}$
**6.** hypotenuse; 39 **7.** 1452 yd$^2$ **8.** 540 mi$^2$
**9.** 5, 12, 13; 130 cm **10.** 7, 24, 25; 96 in.

### Challenge Practice

**1.** 36.2 in. **2. a.** $m = 2$, $n = 3$, or $m = 3$, $n = 2$
**b.** $m^2 - n^2$ and $2mn$ **c.** Answers will vary.
**d.** 3, 4, 5; 7, 24, 25; 9, 40, 41 **3.** 44 beads
**4. a.** $9nx$
**b.**

| $x$ | Triangle | Square |
|---|---|---|
| $x = 1$ | 27 | 36 |
| $x = 2$ | 54 | 72 |
| $x = 3$ | 81 | 108 |
| $x = 4$ | 108 | 144 |
| $x = 5$ | 135 | 180 |
| $x = 6$ | 162 | 216 |
| $x = 7$ | 189 | 252 |
| $x = 8$ | 216 | 288 |
| $x = 9$ | 243 | 324 |
| $x = 10$ | 270 | 360 |

| $x$ | Pentagon | Hexagon |
|---|---|---|
| $x = 1$ | 45 | 54 |
| $x = 2$ | 90 | 108 |
| $x = 3$ | 135 | 162 |
| $x = 4$ | 180 | 216 |
| $x = 5$ | 225 | 270 |
| $x = 6$ | 270 | 324 |
| $x = 7$ | 315 | 378 |
| $x = 8$ | 360 | 432 |
| $x = 9$ | 405 | 486 |
| $x = 10$ | 450 | 540 |