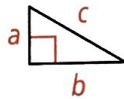


**Do you know HOW?**

Use the triangle at the right. Find the missing side length. If necessary, round to the nearest tenth.



- |                     |                       |
|---------------------|-----------------------|
| 1. $a = 20, b = 25$ | 2. $a = 0.8, b = 1.5$ |
| 3. $a = 5, b = 12$  | 4. $a = 2.2, b = 12$  |
| 5. $a = 14, c = 50$ | 6. $a = 9, c = 41$    |
| 7. $b = 40, c = 41$ | 8. $b = 36, c = 39$   |

Determine whether the given lengths can be side lengths of a right triangle.

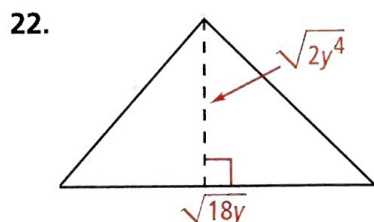
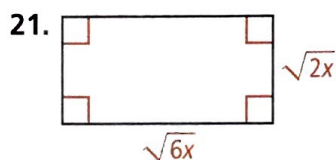
9. 8, 15, 17      10. 5, 24, 25      11. 60, 80, 100

Simplify each radical expression.

- |  |  |
|--|--|
| 12. $\sqrt{80}$                          | 13. $\sqrt{10} \cdot \sqrt{18}$        |
| 14. $\sqrt{6x} \cdot \sqrt{2x}$          | 15. $-2\sqrt{3b^2} \cdot \sqrt{12b}$   |
| 16. $\sqrt{\frac{64}{81}}$               | 17. $-\frac{\sqrt{5c}}{\sqrt{45c^3}}$  |
| 18. $\frac{-3\sqrt{14x^3}}{-\sqrt{21x}}$ | 19. $\frac{\sqrt{13f^3}}{\sqrt{5f^2}}$ |

20. **Sports** A rectangular soccer field is  $6w$  yards wide and  $10w$  yards long. What is an expression for the distance from one corner to the opposite corner?

Find the area of each figure.



Simplify each radical expression.

23.  $5\sqrt{5} + 3\sqrt{5}$   
 24.  $2\sqrt{28} - 3\sqrt{7}$   
 25.  $\sqrt{3}(\sqrt{6} - 4)$   
 26.  $(2\sqrt{21} + 4\sqrt{3})(5\sqrt{21} - \sqrt{3})$   
 27.  $\frac{1}{\sqrt{3} - 2}$   
 28.  $\frac{3 + \sqrt{2}}{4\sqrt{2} + 2}$

Find the exact solution for each equation. Find the approximate solution to the nearest tenth.

29.  $\frac{5}{\sqrt{8} - 2} = \frac{\sqrt{8} + 2}{x}$   
 30.  $\frac{x}{\sqrt{10}} = \frac{3\sqrt{2}}{\sqrt{2} + 1}$

31. **Transportation** A bus leaves the bus station and drives 3.75 mi east. The bus then turns and drives 5 mi south. How far is the bus from the bus station?

**Do you UNDERSTAND?**

32. What type of angle is formed by the two legs of a right triangle?
33. **Writing** How do you use a conjugate to simplify a fraction with a radical expression in its denominator?
34. **Reasoning** Is the equation  $\sqrt{a} + \sqrt{b} = \sqrt{a+b}$  always, sometimes, or never true? Justify your answer.
35. **Error Analysis** Describe and correct the error shown below in simplifying the radical expression.
- $$\begin{aligned} \sqrt{45} &= \sqrt{9 \cdot 5} \\ &= 9\sqrt{5} \end{aligned}$$
36. **Open-Ended** Give the side lengths of a triangle that is not a right triangle. Explain why these lengths cannot be the side lengths of a right triangle.