

11.4 EXERCISES

HOMEWORK KEY

 = **WORKED-OUT SOLUTIONS**
on p. WS1 for Exs. 9, 23, and 35

 = **STANDARDIZED TEST PRACTICE**
Exs. 15, 29, 37, and 39

SKILL PRACTICE


- VOCABULARY** Copy and complete: In a right triangle, the side opposite the right angle is called the ?.
- WRITING** Explain how you can tell whether a triangle with side lengths of 9, 12, and 15 is a right triangle.

EXAMPLE 1

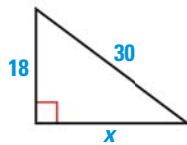
on p. 737
for Exs. 3–16


USING THE PYTHAGOREAN THEOREM Let a and b represent the lengths of the legs of a right triangle, and let c represent the length of the hypotenuse. Find the unknown length.

- | | | |
|---------------------------|----------------------|------------------------|
| 3. $a = 3, c = 5$ | 4. $b = 3, c = 7$ | 5. $a = 5, b = 6$ |
| 6. $b = 5, c = 10$ | 7. $a = 8, b = 8$ | 8. $a = 5, b = 12$ |
| 9. $a = 8, b = 12$ | 10. $a = 7, c = 25$ | 11. $b = 15, c = 17$ |
| 12. $a = 9, c = 41$ | 13. $b = 3, c = 3.4$ | 14. $a = 1.2, c = 3.7$ |

15.  **TAKS REASONING** A tennis court is 36 feet by 78 feet. What is the length of a diagonal? Round your answer to the nearest tenth of a foot.
- (A) 42.0 feet (B) 69.2 feet (C) 85.9 feet (D) 114.0 feet

16. **ERROR ANALYSIS** Describe and correct the error in finding the unknown length.

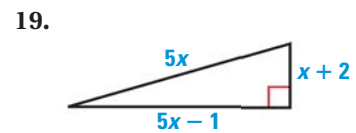
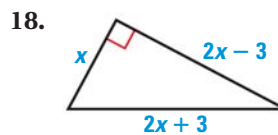
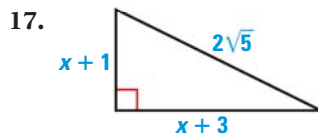


$$\begin{aligned} 18^2 + 30^2 &= x^2 \\ 1224 &= x^2 \\ 6\sqrt{34} &= x \end{aligned}$$


EXAMPLE 2

on p. 738
for Exs. 17–22

USING THE PYTHAGOREAN THEOREM Find the unknown lengths.



- A right triangle has one leg that is 2 inches longer than the other leg. The length of the hypotenuse is $\sqrt{130}$ inches. Find the lengths of the legs.
- A right triangle has one leg that is 3 times as long as the other leg. The length of the hypotenuse is $\sqrt{40}$ inches. Find the lengths of the legs.
- A right triangle has one leg that is $\frac{1}{2}$ of the length of the other leg. The length of the hypotenuse is $6\sqrt{5}$ inches. Find the lengths of the legs.

EXAMPLE 4

on p. 739
for Exs. 23–28

DETERMINING RIGHT TRIANGLES Tell whether the triangle with the given side lengths is a right triangle.

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|--------------------|----------------|------------------|
| 23. 2, 3, 4 | 24. 9, 12, 15 | 25. 8, 16, 18 |
| 26. 9, 21, 24 | 27. 11, 60, 61 | 28. 24, 143, 145 |