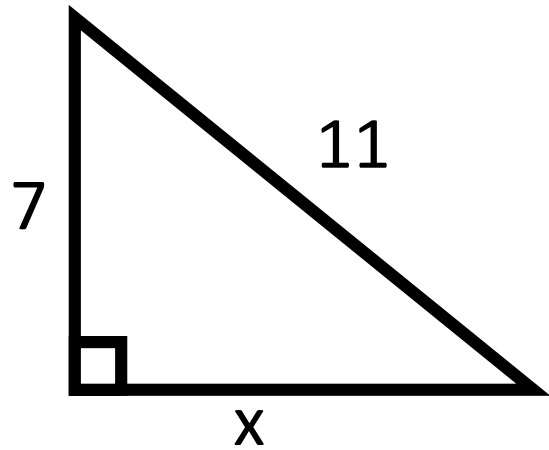


Warm Up

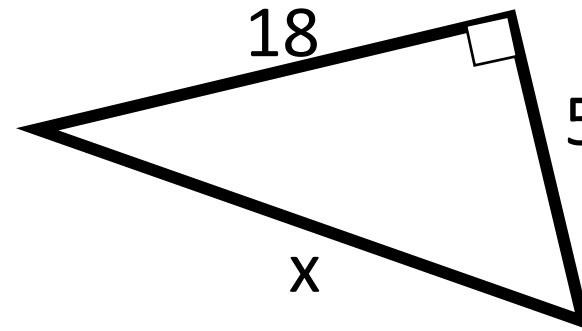
Solve for the unknown side or angle.



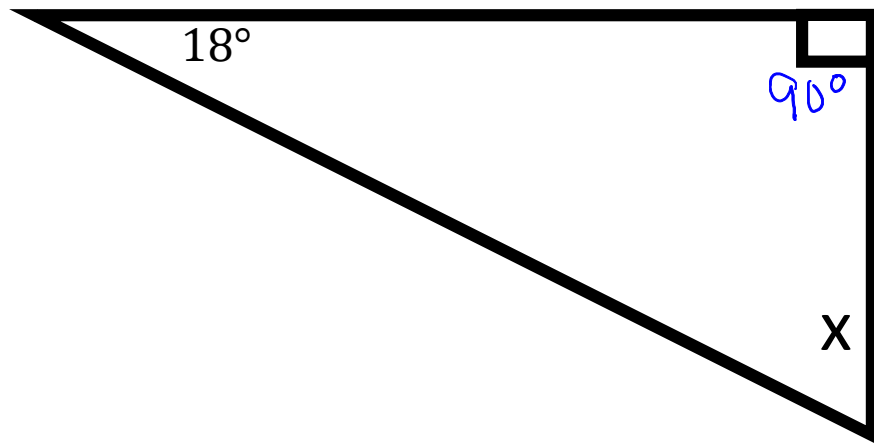
$$\begin{aligned}7^2 + x^2 &= 11^2 \\49 + x^2 &= 121 \\x^2 &= 72 \\x &= \sqrt{72} \\x &= 6\sqrt{2}\end{aligned}$$

Handwritten prime factorization of 72:

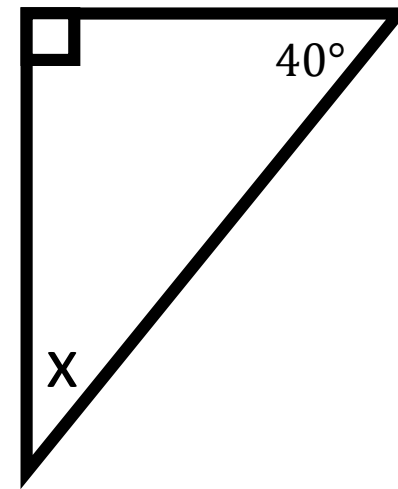
$$\begin{array}{c} \sqrt{72} \\ \wedge \\ 2 \quad 8 \\ \wedge \quad \wedge \\ 1 \quad 2 \quad 2 \\ \textcircled{3} \quad 3 \quad 2 \quad 2 \\ \quad \quad \quad \downarrow \\ \quad \quad \quad \textcircled{2} \end{array}$$



$$\begin{aligned}5^2 + 18^2 &= x^2 \\25 + 324 &= x^2 \\349 &= x^2 \\x &= \sqrt{349}\end{aligned}$$

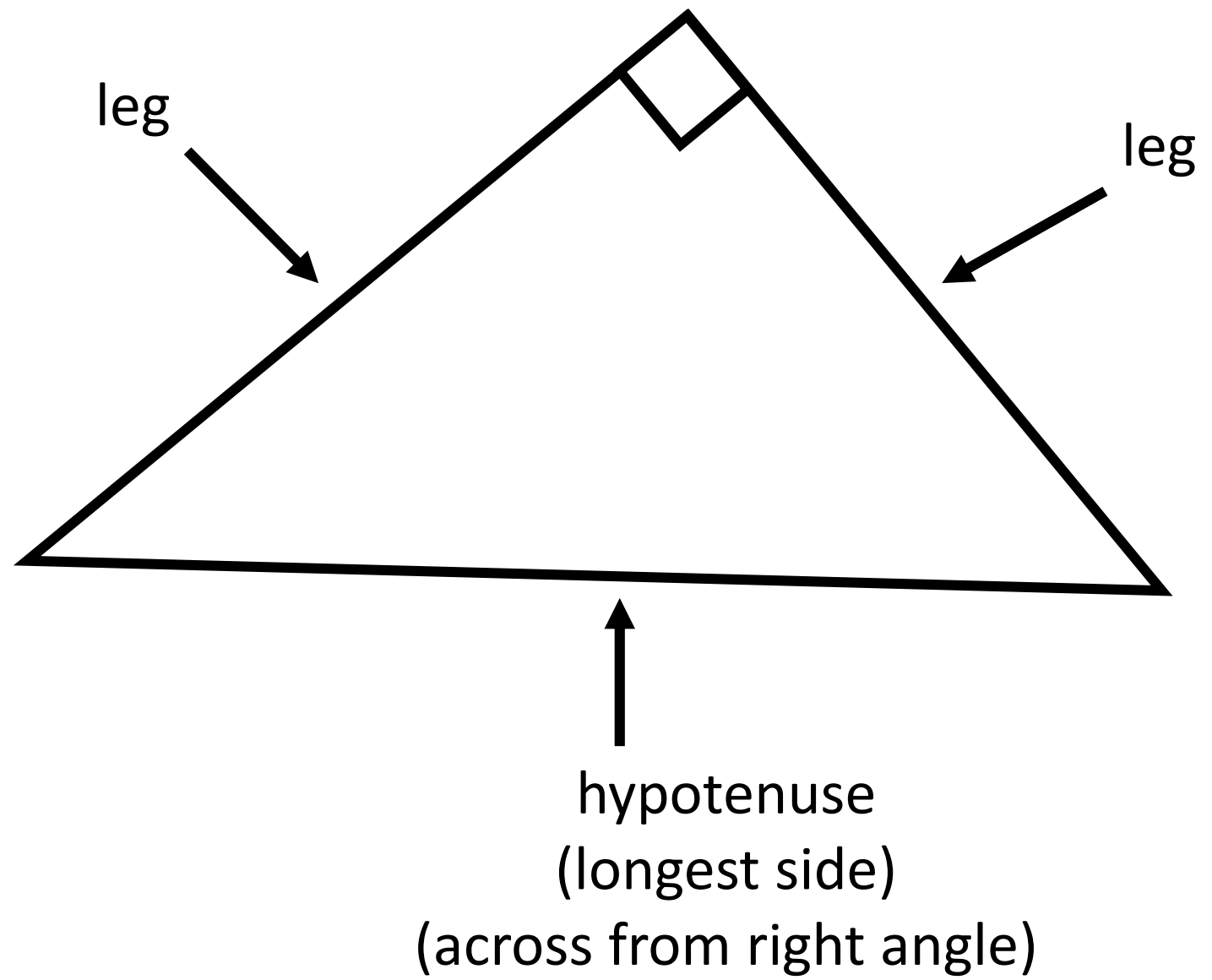


$$\begin{aligned}180^\circ &= x + 18^\circ + 90^\circ \\x &= 7\end{aligned}$$



Notes

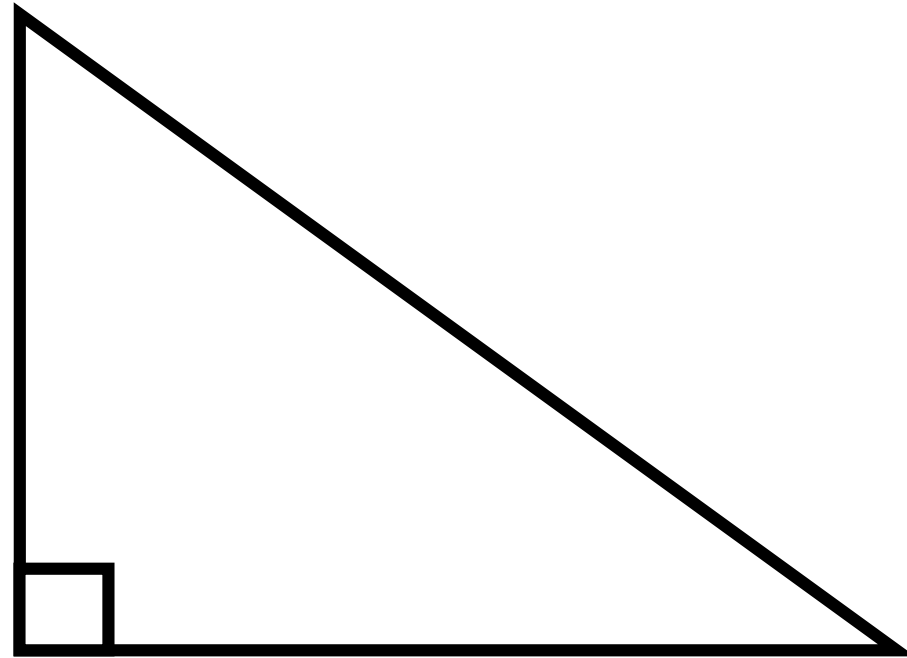
What are the parts of a right triangle?



Notes

Pythagorean Theorem: Given a **right triangle**, the square of the hypotenuse is equal to the sum of the squares of the legs.

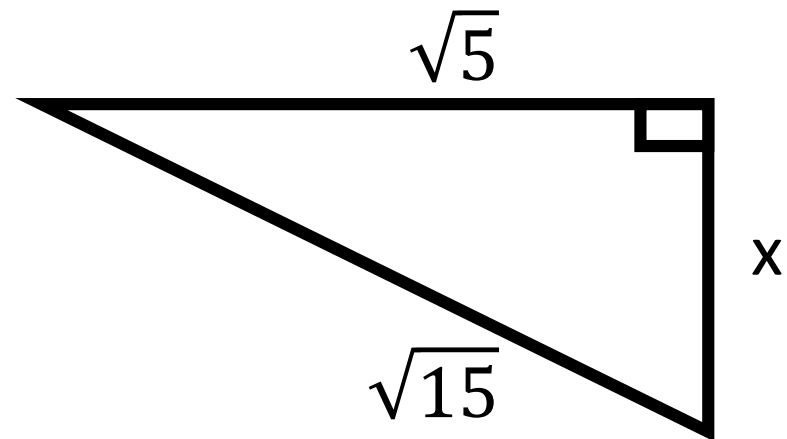
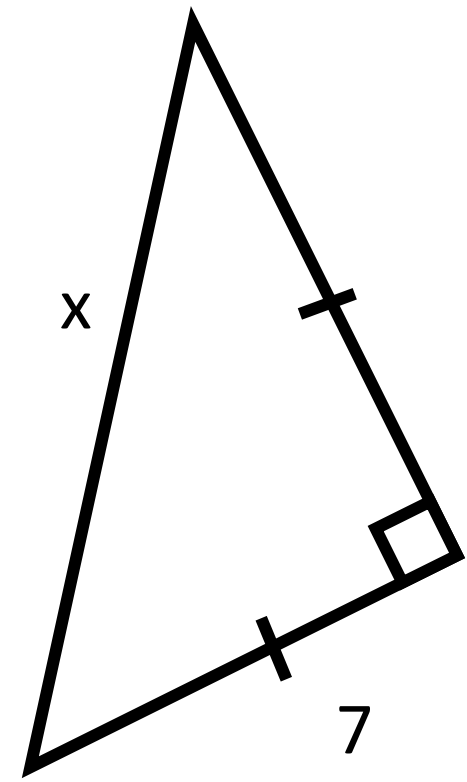
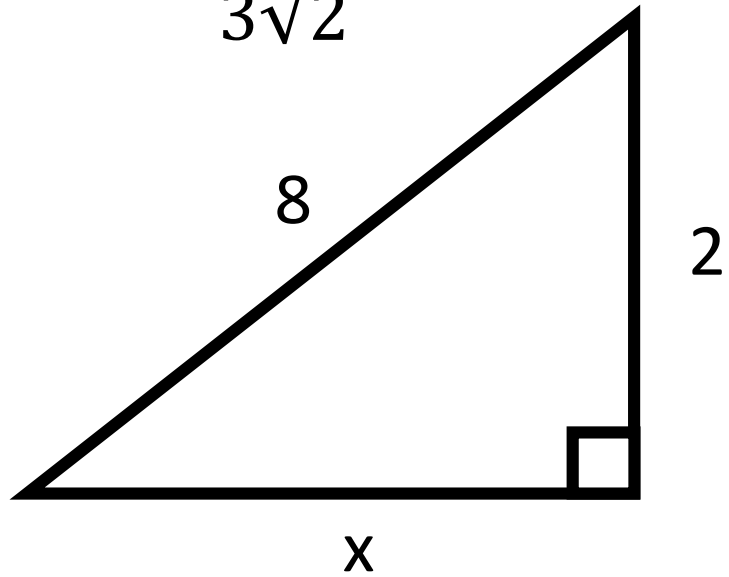
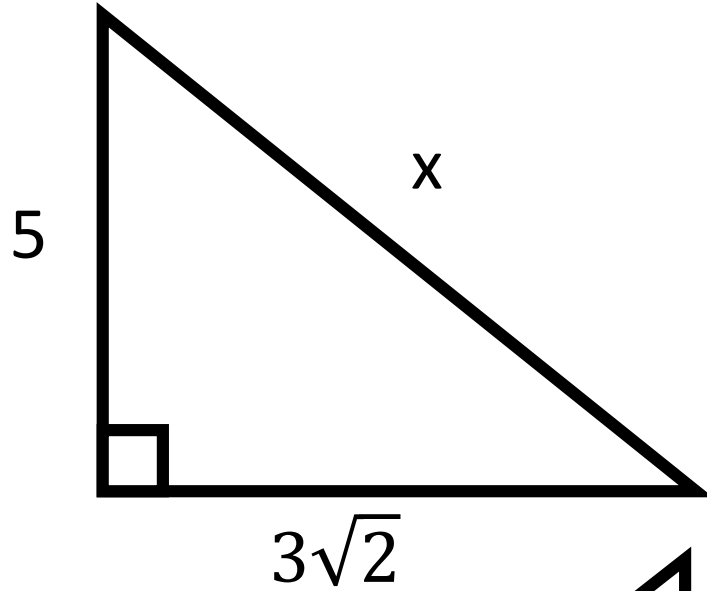
Label the picture using the letters a, b, and c.



Remember, a and b are legs, and c is the hypotenuse (the longest side).

Notes

Use the Pythagorean Theorem to solve for x .



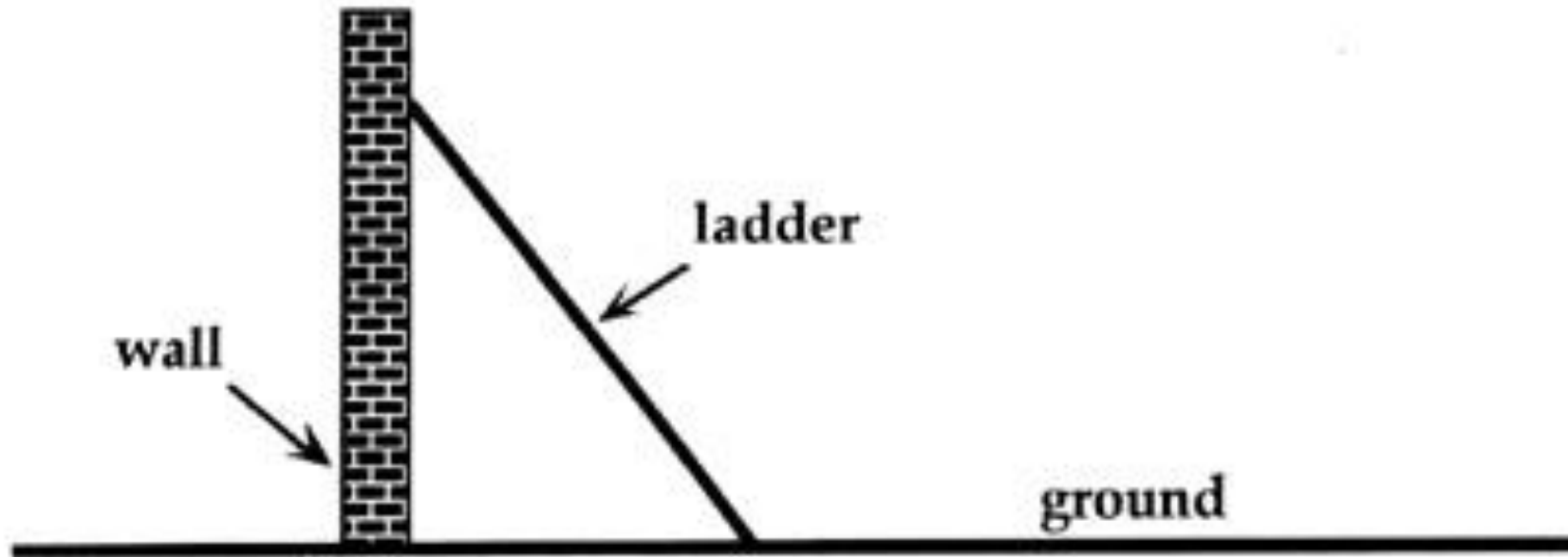
Notes

Find the length of the diagonal of a square with side length 6.

Find the length of the diagonal of a rectangle with dimensions 4 in x 5 in.

Notes

The bottom of a 10-foot straight ladder is set into the ground 6 feet away from a wall. When the top of the ladder is leaned against the wall, what is the distance above the ground it will reach?



Notes

Pythagorean Triples are 3 integers that form a right triangle.

We can check because they satisfy the Pythagorean Theorem.

Common triples:

3, 4, 5

5, 12, 13

7, 24, 25

8, 15, 17

Notes

Pythagorean Triples are 3 integers that form a right triangle.

We can check because they satisfy the Pythagorean Theorem.

Which are Pythagorean Triples?

6, 8, 10

1.5, 2, 2.5

4, 8, 10

15, 36, 39

Notes

Find a third number to generate a set of Pythagorean Triples:

14, 28, ?