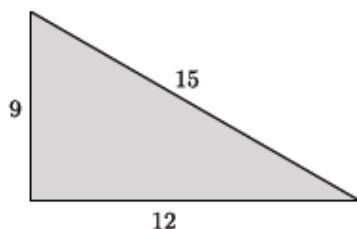# Lesson 14: The Converse of the Pythagorean Theorem

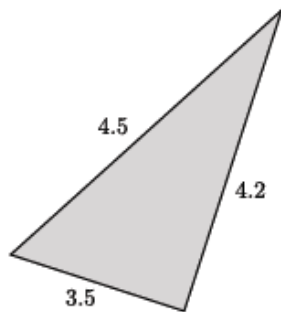## Classwork

### Exercises

1. The numbers in the diagram below indicate the units of length of each side of the triangle. Is the triangle shown below a right triangle? Show your work, and answer in a complete sentence.
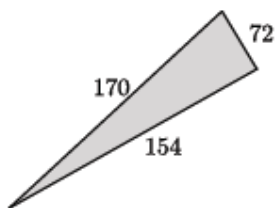


2. The numbers in the diagram below indicate the units of length of each side of the triangle. Is the triangle shown below a right triangle? Show your work, and answer in a complete sentence.



3. The numbers in the diagram below indicate the units of length of each side of the triangle. Is the triangle shown below a right triangle? Show your work, and answer in a complete sentence.
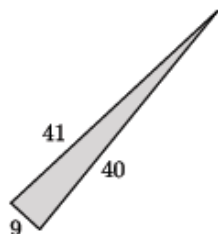
4.  The numbers in the diagram below indicate the units of length of each side of the triangle.  Is the triangle shown below a right triangle?  Show your work, and answer in a complete sentence.
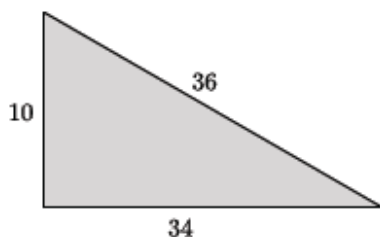


5.  The numbers in the diagram below indicate the units of length of each side of the triangle.  Is the triangle shown below a right triangle?  Show your work, and answer in a complete sentence.
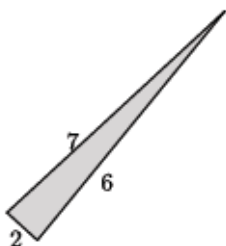


6.  The numbers in the diagram below indicate the units of length of each side of the triangle.  Is the triangle shown below a right triangle?  Show your work, and answer in a complete sentence.



7.  The numbers in the diagram below indicate the units of length of each side of the triangle.  Is the triangle shown below a right triangle?  Show your work, and answer in a complete sentence.
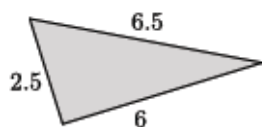
**Lesson Summary**

The converse of the Pythagorean theorem states that if the side lengths of a triangle, $a, b, c$, satisfy $a^2 + b^2 = c^2$, then the triangle is a right triangle.

If the side lengths of a triangle, $a, b, c$, do not satisfy $a^2 + b^2 = c^2$, then the triangle is not a right triangle.

## Problem Set

1.  The numbers in the diagram below indicate the units of length of each side of the triangle. Is the triangle shown below a right triangle? Show your work, and answer in a complete sentence.
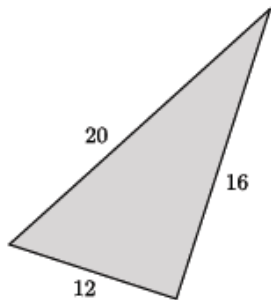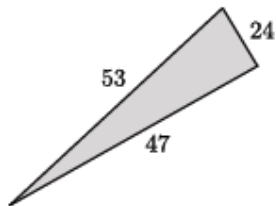
    

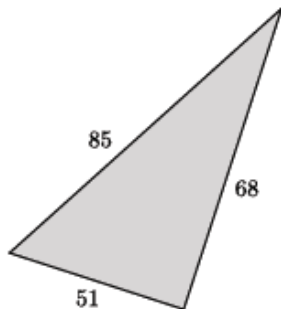2.  The numbers in the diagram below indicate the units of length of each side of the triangle. Is the triangle shown below a right triangle? Show your work, and answer in a complete sentence.

    

3.  The numbers in the diagram below indicate the units of length of each side of the triangle. Is the triangle shown below a right triangle? Show your work, and answer in a complete sentence.
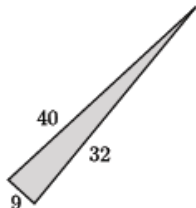
4. The numbers in the diagram below indicate the units of length of each side of the triangle. Sam said that the following triangle is a right triangle because $9 + 32 = 40$. Explain to Sam what he did wrong to reach this conclusion and what the correct solution is.



5. The numbers in the diagram below indicate the units of length of each side of the triangle. Is the triangle shown below a right triangle? Show your work, and answer in a complete sentence.
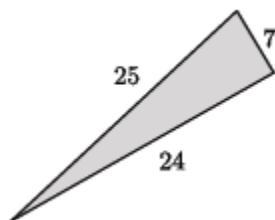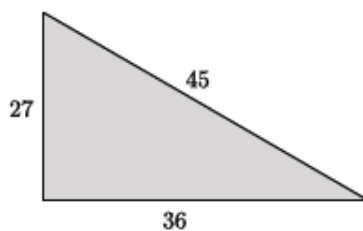


6. Jocelyn said that the triangle below is not a right triangle. Her work is shown below. Explain what she did wrong, and show Jocelyn the correct solution.



We need to check if $27^2 + 45^2 = 36^2$ is a true statement. The left side of the equation is equal to 2,754. The right side of the equation is equal to 1,296. That means $27^2 + 45^2 = 36^2$ is not true, and the triangle shown is not a right triangle.