

# Understand and Apply the Pythagorean Theorem

Dear Family,

Your child is studying the Pythagorean Theorem, its converse, and its applications in real-world situations. This Topic begins with an exploration of the Pythagorean Theorem and its converse. The converse allows your child to conclude that a triangle is a right triangle if and only if its side lengths satisfy the relationship described in the theorem. Applications your child will encounter include finding the length of any line segment in the coordinate plane.

Here is an activity you can do with your child to help him or her practice using the Pythagorean Theorem.

## Is it Right?

**Materials:** ruler, tape, ribbon or string

**Step 1** Find an object in your home that appears to contain a right angle, such as a mirror or a window.

**Step 2** Work with your child to outline a right triangle on the object using tape and ribbon or string. Measure the sides of the triangle. Then use the Pythagorean Theorem to check whether the angle is indeed a right angle. Discuss factors that may affect the results, such as measurement error or rounding.

**Step 3** Repeat with other household objects.

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## Observe Your Child

### Focus on Mathematical Practices

Model with mathematics.

Help your child become proficient with this Mathematical Practice. Discuss real-world problem situations in which the Pythagorean Theorem might be useful. For example, if you know the length of a ladder and the height of a window in a building, you can use the theorem to find the distance from the building to place the base of the ladder in order to be able to reach the window. Ask your child to look for situations in which the theorem could be applied and to describe how to use the theorem to find a missing length.