EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

The first lesson in this topic introduces students to **triangle correspondence**. Students learn how to determine when two triangles are unique and when they are identical as well as how to use the correct notation and terminology to discuss triangle correspondence. Students use a ruler, protractor, **compass**, and **set square** to construct triangles and parallelograms. Through these constructions, students learn which conditions determine a unique triangle, more than one triangle, or no triangle. The topic concludes with students solving real-world and mathematical problems.

You can expect to see homework that asks your child to do the following:

- Identify the correspondences among vertices, angles, and sides.
- Name the angle pairs and side pairs to find the triangle correspondence.
- Use geometric tools to draw segments, angles, triangles, circles, rectangles, parallelograms, and rhombuses.
- Draw triangles that satisfy one or more conditions. For example, draw three different acute triangles so that one angle in each triangle measures 45 degrees.
- Draw triangles with given conditions, and then make conclusions about these triangles.
- State whether triangles are identical, not identical, or not necessarily identical.

SAMPLE PROBLEMS *(From Lessons 11 and 14)*

1. Draw a triangle according to these instructions:

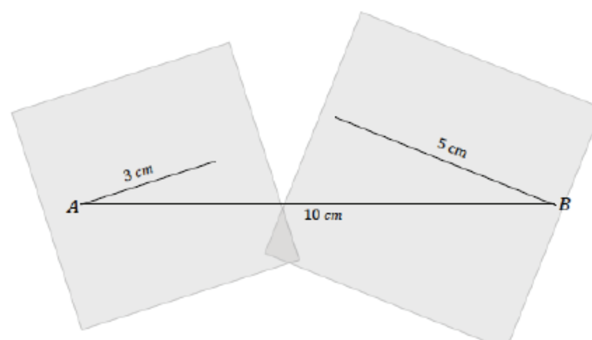
Draw segment AB of length 10 cm in your notebook.

Draw segment BC of length 5 cm on one piece of patty paper (similar to a square of wax paper).

Draw segment AC of length 3 cm on another piece of patty paper.

Line up the appropriate endpoint on each piece of patty paper with the matching endpoint on segment AB.

Use your pencil point to hold each patty paper in place and adjust the paper to form $\triangle ABC$.



a. What do you notice?
$\triangle ABC$ cannot be formed because $\overline{AC}$ and $\overline{BC}$ do not meet.

b. What must be true about the sum of the lengths of $\overline{AC}$ and $\overline{BC}$ if the two segments were to just meet? Use your patty paper to verify your answer.

For $\overline{AC}$ and $\overline{BC}$ to just meet, the sum of their lengths must be equal to 10 cm.

c. Based on your conclusion for part (b), what if $AC = 3$ cm, as you drew it originally, but $BC = 10$ cm? Could you form $\triangle ABC$?
Yes, you can form $\triangle ABC$ because $\overline{AC}$ and $\overline{BC}$ can meet at an angle and still be anchored at A and B.

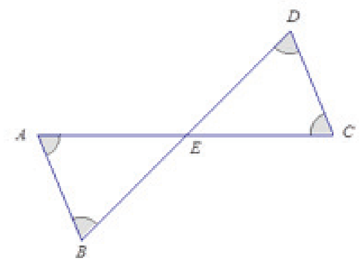
SAMPLE PROBLEMS *(continued)*

d. What must be true about the sum of the lengths of $\overline{AC}$ and $\overline{BC}$ if the two segments were to meet and form a triangle?

For $\overline{AC}$ and $\overline{BC}$ to meet and form a triangle, the sum of their lengths must be greater than 10 cm.

2. Study the image at the right. Are the triangles identical? Justify your reasoning.

The triangles are not necessarily identical. The correspondence $\triangle AEB \leftrightarrow \triangle CED$ matches three pairs of angles, including unmarked angles AEB and CED, which are equal in measurement because they are vertical angles. The triangles could have different side lengths; therefore, they are not necessarily identical.

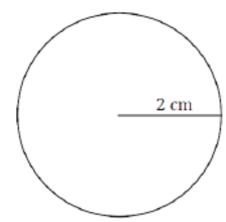


Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

You can help at home in many ways. Here are some tips to help you get started.

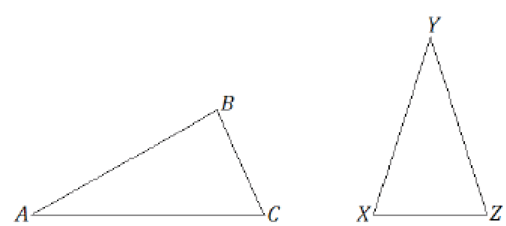
- Encourage your child to practice using a ruler, protractor, and compass at home. You can provide your child with a condition or two (see the lessons for ideas) and ask him to construct the shape that meets the conditions. For example, you may say, "Draw a circle with a radius of 2 cm," and he would use a ruler to measure and label a radius of 2 cm and then use a compass to draw a circle. (See image at right.)



- Ask your child about the conditions that are needed to form a triangle. You can extend this conversation to discuss the conditions that result in a unique triangle. (Refer to the Lesson Summaries throughout the topic to learn more about these conditions.)

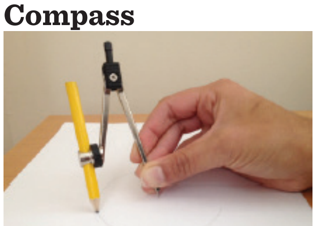
TERMS

Triangle correspondence: When two triangles correspond, each vertex of one triangle is paired with one (and only one) vertex of the other triangle. The expression $\triangle ABC \leftrightarrow \triangle XYZ$ shows that there is correspondence between two triangles. This means that A matches to X, B matches to Y, and C matches to Z. Correspondence does not imply that the two figures are identical.



MODELS

Compass



Set Square