

ACTIVITY 9.3

Using Technology

Geometry Software Activity for use with Lesson 9.3

Investigating Sides and Angles of Triangles

You can use geometry software to explore how the angle measures of a triangle are related to its side lengths.

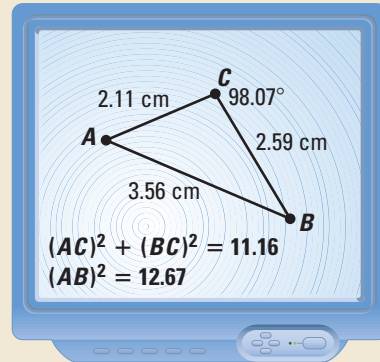
STUDENT HELP

INTERNET SOFTWARE HELP

Visit our Web site www.mcdougallittell.com to see instructions for several different software applications.

CONSTRUCT

- 1 Construct a triangle. Label the vertices A , B , and C .
- 2 Measure \overline{AC} , \overline{BC} , and \overline{AB} .
- 3 Calculate the value of $(AC)^2 + (BC)^2$. Calculate the value of $(AB)^2$.
- 4 Measure $\angle C$.



INVESTIGATE

1. Make a table like the one shown. Record the side lengths, the value of $(AC)^2 + (BC)^2$, the value of $(AB)^2$, and the measure of $\angle C$. Round decimals to the nearest hundredth.

	AC	BC	AB	$(AC)^2 + (BC)^2$	$(AB)^2$	$m\angle C$
Triangle 1	2.11 cm	2.59 cm	3.56 cm	11.16 cm	12.67 cm	98.07°
Triangle 2	?	?	?	?	?	?
Triangle 3	?	?	?	?	?	?
Triangle 4	?	?	?	?	?	?
Triangle 5	?	?	?	?	?	?
Triangle 6	?	?	?	?	?	?

2. Drag point C to change the measure of $\angle C$ and the shape of $\triangle ABC$. Find and record the values in the table.
3. Repeat Step 2 for several more triangles. In your table, be sure to include some triangles for which $\angle C$ is an acute angle, some for which $\angle C$ is a right angle, and some for which $\angle C$ is an obtuse angle.

CONJECTURE

4. Use the data in the table to look for a pattern. Make a conjecture about how the value of $(AC)^2 + (BC)^2$ compares with the value of $(AB)^2$ when the measure of $\angle C$ is less than 90° , equal to 90° , and greater than 90° .