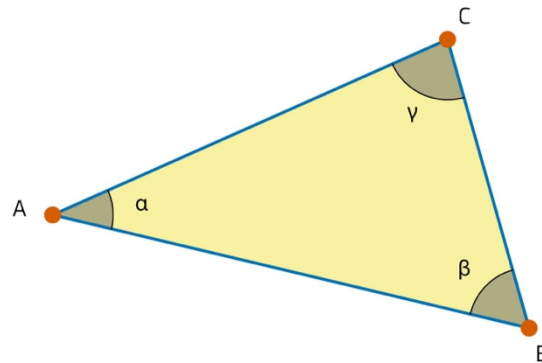# Triangle Sum Theorem

Construction

▶ Draw a triangle ABC and label the angles at the three vertices.

▶ Measure the angles and the sum of the angles. Place the measures to the right of the triangle on the board.

Exploration

▶ Drag any of the vertices A, B, C of the triangle.

Observe the measures of the three angles and the sum of the measures.

▶ Formulate your finding as a conjecture.

▶ Developing a proof: Choose the strategy of adding an auxiliary line.

Draw a line through C parallel to side $\overline{AB}$ and label the alternative interior angles.

What is the relationship among the angles $\varepsilon, \gamma, \delta$? Try to write a proof.