



Discovering and Proving the Triangle Sum

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Objectives

- ▶ Students discover the sum of the measures of the angles of a triangle.
- ▶ They prove the triangle sum conjecture by use of alternate interior angles.

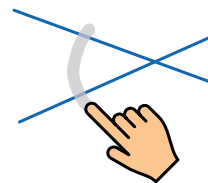
sketchometry Instructions

The students should know


- ▶ how to draw a triangle,



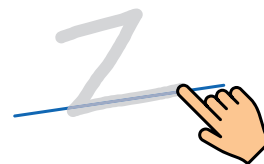
- ▶ how to tag an angle,



- ▶ how to measure angles and the sum of angles,

 *Measure* > tap an angle (or several angles) > tap the screen at a free spot to place the measurement

- ▶ how to draw a line parallel to a given line segment.



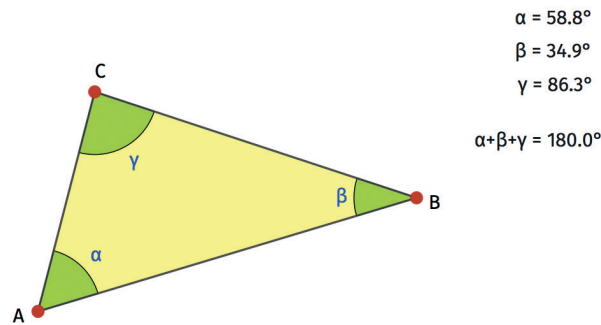
Further Exploration

Discover the sum of the interior angles of a quadrilateral. Hint: Try to use your knowledge about the triangle sum.

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Construction

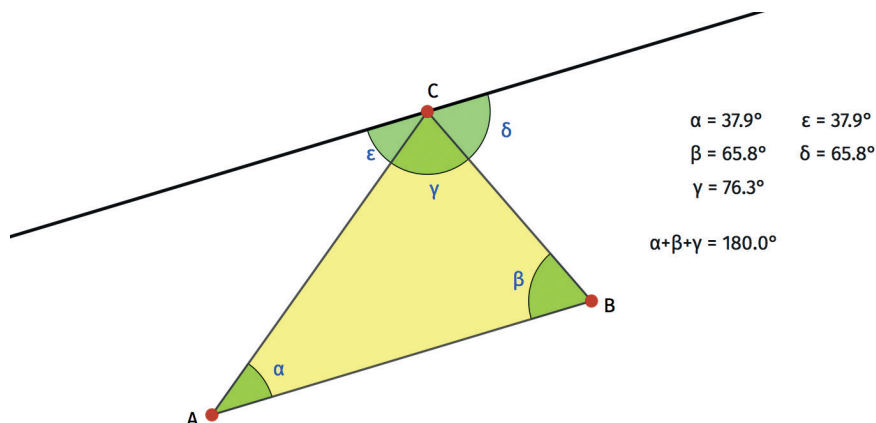
- ▶ Draw a triangle ABC and label the angles at the three vertices.



- ▶ Measure the angles and the sum of the angles.
Place the measures on the drawing plane (tablet screen).

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 observations as a conjecture.
- ▶ Developing a proof:
Choose the strategy of adding an auxiliary line.



- ▶ Draw a line through C parallel to side [AB] and label the alternative interior angles. What is the relationship among the angles ϵ, γ, δ ?
Try to write a proof.

