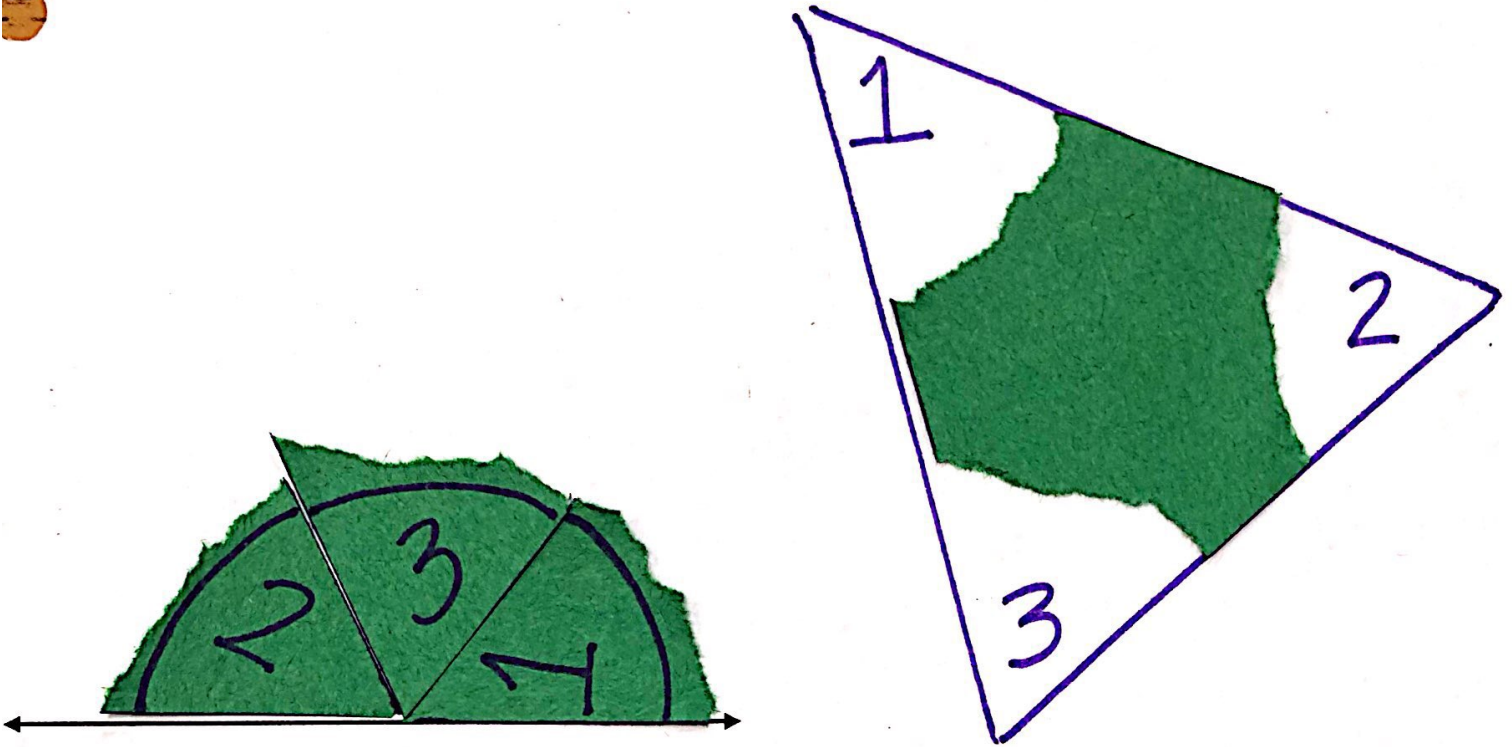
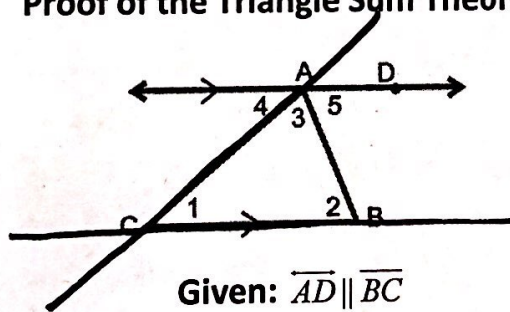


Triangle Sum Theorem: The interior angles of a triangle add to 180°.



Proof of the Triangle Sum Theorem



Given: $\overline{AD} \parallel \overline{BC}$

Prove: $m\angle 1 + m\angle 2 + m\angle 3 = 180^\circ$

Statements	Reasons
1. $\overline{AD} \parallel \overline{BC}$	1. Given
2. $\angle 1 \cong \angle 4$ and $\angle 2 \cong \angle 5$	2. Alt. Int. Angle Thm
3. $\angle 4 + \angle 3 + \angle 5 = 180^\circ$	3. angles on a line sum to 180°
4. $\angle 1 + \angle 3 + \angle 2 = 180^\circ$	4. Substitution Property