Triangle Angle Bisector Theorem
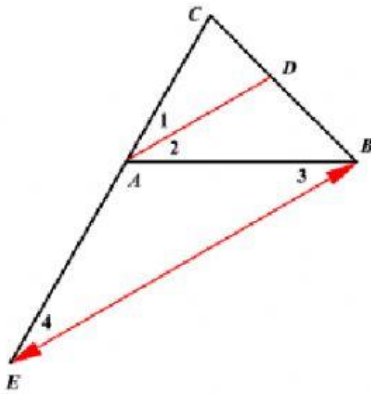

Given: $\overline{AD}$ bisects $\angle CAB$

$\overline{AD}$ is parallel to $\overline{EB}$

Prove: $\dfrac{CA}{CD} = \dfrac{AB}{DB}$ (i.e., <mark>Triangle Angle Bisector Theorem</mark>)

Statements	Reasons
1. $\overline{AD}$ is parallel to $\overline{EB}$	1.
2. .	2. Triangle Slide Splitter Theorem
3.	3. Given
4. .	4. Definition of Angle Bisector
5. $\angle 1 \cong \angle 4$	5.
6.	6. Substitution (More specifically the transitive property)
7. $\angle 2 \cong \angle 3$	7.
8. $\angle 4 \cong \angle 3$	8.
9. .	9. Base Angles Theorem
10. $\dfrac{CA}{CD} = \dfrac{AB}{DB}$	10.

Directions: Drag and drop to complete the proof table above.

Given $\qquad \dfrac{CA}{CD} = \dfrac{AE}{DB} \qquad \angle 1 \cong \angle 2 \qquad \angle 2 \cong \angle 4 \qquad \overline{AD} \text{ bisects } \angle CAB \qquad \overline{AE} \cong \overline{AB}$

Alternate Interior Angles of Parallel Lines are congruent. $\qquad$ Substitution

Corresponding Angles of Parallel Lines are congruent.

Substitution (More specifically the transitive property)