

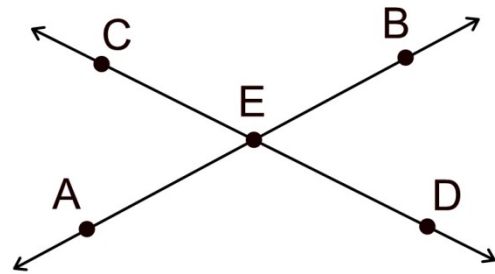
# Vertical Angles and Rotations

Name \_\_\_\_\_

**PROVE:** Vertical angles are congruent.

**Given:** straight lines  $\overleftrightarrow{AB}$ ,  $\overleftrightarrow{CD}$

**Prove:**  $\angle AEC \cong \angle BED$   
and/or  $\angle CEB \cong \angle DEA$



**Transformational Proof:**

The basis of this transformational proof will be a rotation of  $180^\circ$  about  $E$ .

1. A rotation of  $180^\circ$  about  $E$ , will map  $A$  onto \_\_\_\_\_.
2. A rotation of  $180^\circ$  about  $E$ , will map  $C$  onto \_\_\_\_\_.
3. Explain why  $\angle A'EC' \cong \angle BED$ .
4. Explain why  $\angle A'EC' \cong \angle AEC$ .
5. Explain why  $\angle AEC \cong \angle BED$ .
6. Done! (A similar process will prove  $\angle CEB \cong \angle DEA$ .)