

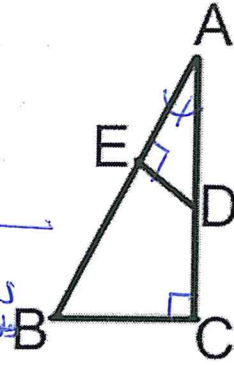
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Date \_\_\_\_\_  
Geometry

## Similar Triangle Proofs Practice

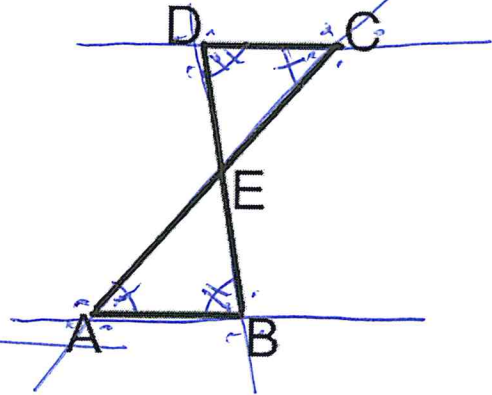
1. Given:  $\overline{BC} \perp \overline{AC}$   
 $\overline{DE} \perp \overline{AB}$   
Prove:  $\overline{AB} \cdot \overline{DE} = \overline{AD} \cdot \overline{BC}$  work backwards

Statements	Reasons
① $\overline{BC} \perp \overline{AC}, \overline{DE} \perp \overline{AB}$	① given
② $\angle ACB \cong \angle AED$	② perpendicular lines create congruent right angles
③ $\angle EAD \cong \angle EAD$	③ reflexive property
④ $\triangle ABC \sim \triangle ADE$	④ AA
⑤ $\frac{\overline{AB}}{\overline{BC}} = \frac{\overline{AD}}{\overline{DE}}$	⑤ CSSTIP
⑥ $\overline{AB} \cdot \overline{DE} = \overline{AD} \cdot \overline{BC}$	⑥ cross products are equal



2. Given  $\overline{AB} \parallel \overline{DC}$   
Prove:  $\frac{\overline{BE}}{\overline{DE}} = \frac{\overline{EA}}{\overline{EC}}$  work backwards

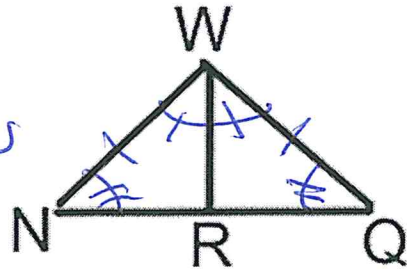
Statements	Reasons
① $\overline{AB} \parallel \overline{DC}$	① given
② $\angle BAE \cong \angle DCE$ $\angle ABE \cong \angle CDE$	② parallel lines cut by a transversal create congruent alternate interior angles.
③ $\triangle BEA \sim \triangle DEC$	③ AA
④ $\frac{\overline{BE}}{\overline{DE}} = \frac{\overline{EA}}{\overline{EC}}$	④ CSSTIP



3. Given:  $\overline{WR}$  bisects  $\angle NWQ$

$$\overline{WN} \cong \overline{WQ}$$

Prove:  $\overline{WN} \cdot \overline{RQ} = \overline{WQ} \cdot \overline{RN}$  work backwards



Statements

Reasons

① $\overline{WR}$ bisects $\angle NWQ$	① given
② $\angle NWR \cong \angle QWR$	② An angle bisector creates two congruent angles
③ $\overline{WN} \cong \overline{WQ}$	③ given
④ $\angle WNR \cong \angle WQR$	④ Isosceles Triangle Theorem
⑤ $\triangle WNR \sim \triangle WQR$	⑤ AA
⑥ $\frac{\overline{WN}}{\overline{RN}} = \frac{\overline{WQ}}{\overline{RQ}}$	⑥ CSSTIP
⑦ $\overline{WN} \cdot \overline{RQ} = \overline{WQ} \cdot \overline{RN}$	⑦ cross products are equal