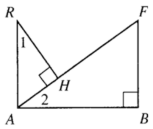
SECTION 7.4: A POSTULATE FOR SIMILAR TRIANGLES

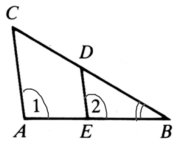
Standards:
4.0: Students prove basic theorems involving congruence and similarity.
13.0: Students prove relationships between angles in polygons by using properties of complementary, supplementary, vertical, and exterior angles.

1)
Given: $\overline{AB} \perp \overline{BF}$; $\overline{RH} \perp \overline{AF}$; $\angle 1 \cong \angle 2$
Prove: **HR· BF=BA· HA**
Proof:



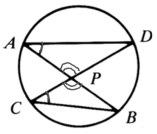
STATEMENTS	REASONS
1) $\overline{AB} \perp \overline{BF}$; $\overline{RH} \perp \overline{AF}$; $\angle 1 \cong \angle 2$ (A)	1) **Given**
2) $m(\angle RHA)=90, m(\angle B)=90$	2) **Defn. of Perp. Lines**
3) $\angle RHA \cong \angle B$ (A)	3) **Substitution**
4) $\triangle RHA \sim \triangle ABF$	4) **AA~ Post.**
5) $\frac{HA}{BF}=\frac{HR}{BA}$	5) corr. sides of ~ Δs are prop.
6) $HR \bullet BF = BA \bullet HA$	6) means-Extremes prop.

2)
Given: $\angle 1 \cong \angle 2$
Prove: $BD \cdot CA = BC \cdot DE$
Proof:



STATEMENTS	REASONS
1) $\angle 1 \cong \angle 2$ (A)	1) **Given**
2) $\angle B \cong \angle B$ (A)	2) **Reflexive Prop.**
3) $\triangle EDB \sim \triangle ACB$	3) **AA ~ Post.**
4) $\frac{BD}{BC}=\frac{DE}{CA}$	4) **Corr. sides of ~ triangles are in prop.**
5) $BD \bullet CA = BC \bullet DE$	5) means-Extremes prop

3)
Given: $\angle DAB \cong \angle DCB$
Prove: $AP \cdot PB = CP \cdot PD$
Proof:



STATEMENTS	REASONS
1) $\angle DAB \cong \angle DCB$ (A)	1) **Given**
2) $\angle APD \cong \angle CPB$ (A)	2) **Vert. angles are congruent**
3) $\triangle APD \sim \triangle CPB$	3) **AA ~ Post**
4) $\frac{AP}{CP}=\frac{PD}{PB}$	4) corr sides of ~ Δs are prop.
5) $AP \bullet PB = CP \bullet PD$	5) means-Extremes prop.

HOMEWORK

Assignment #7.4b
- WS: Similar Polygons
- Pages 258-259 #21-24