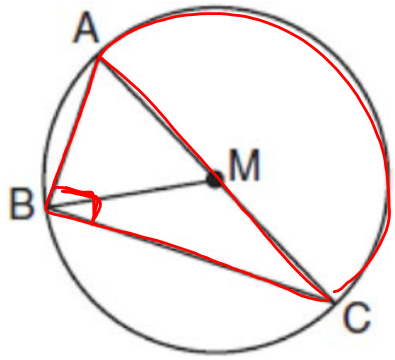
DO NOW

In circle M below, diameter $\overline{AC}$, chords $\overline{AB}$ and $\overline{BC}$, and radius $\overline{MB}$ are drawn.

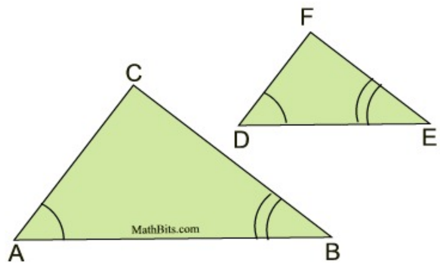
Which statement is *not* true?

1) $\triangle ABC$ is a right triangle.
2) $\triangle ABM$ is isosceles.
3) $m\overset{\frown}{BC} = m\angle BMC$
4) $m\overset{\frown}{AB} = \frac{1}{2} m\angle ACB$



Similar Triangle Proofs

To prove triangles SIMILAR (~),use Angle-Angle (AA)



$\Delta ABC \sim \Delta DEF$

Use corresponding sides to set up a PROPORTION

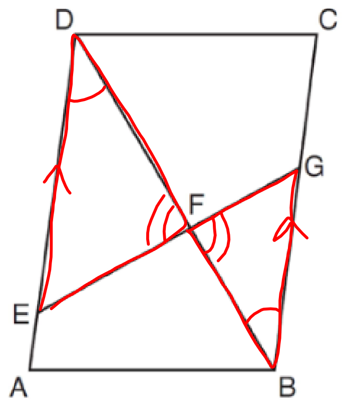
$$\frac{AB}{DE} = \frac{BC}{EF}$$

Use the proportion to prove that CROSS PRODUCTS are equal

$$AB \cdot EF = DE \cdot BC$$

Given: Parallelogram $ABCD$, $\overline{EFG}$, and diagonal $\overline{DFB}$

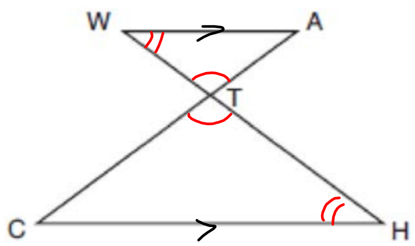
Prove: $\triangle DEF \sim \triangle BGF$



Statement	Reason
1) Parallelogram ABCD	1) Given
2) $\overline{AD} \parallel \overline{BC}$	2) Opp. sides of p-gram are //
3) $\angle EDF \cong \angle GBF$	3) // lines create $\cong$ alt int $\angle$'s
4) $\angle DFE \cong \angle BFG$	4) Vertical $\angle$'s are $\cong$
5) $\triangle DEF \sim \triangle BGF$	5) AA

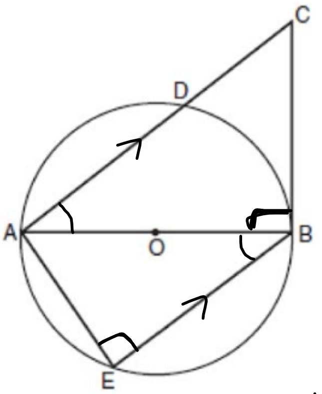
In the accompanying diagram, $\overline{WA} \parallel \overline{CH}$ and $\overline{WH}$ and $\overline{AC}$ intersect at point T. Prove that $(WT)(CT) = (HT)(AT)$. → $\triangle WAT \sim \triangle HCT$

① ④ ② ③



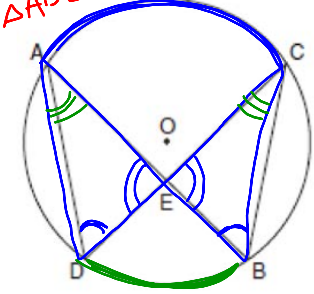
Statement	Reason
1) $\overline{WA} \parallel \overline{CH}$	1) Given
2) $\angle WTA \cong \angle HTC$	2) Vertical $\angle$'s are $\cong$
3) $\angle W \cong \angle H$	3) Alt int $\angle$'s $\cong$ when lines //
4) $\triangle WAT \sim \triangle HCT$	4) AA
5) $\frac{WT}{HT} = \frac{AT}{CT}$	5) Corresponding sides of $\sim$ $\triangle$'s are in proportion
6) $(WT)(CT) = (HT)(AT)$	6) In a proportion, cross products are equal (Product of means = product of extremes)

In the accompanying diagram of circle O, diameter $\overline{AOB}$ is drawn, tangent $\overline{CB}$ is drawn to the circle at B, E is a point on the circle, and $\overline{BE} \parallel \overline{ADC}$.
Prove: $\triangle ABE \sim \triangle CAB$



Statement	Reason
1) $\overline{BE} \parallel \overline{ADC}$	1) Given
2) $\angle CAB \cong \angle ABE$	2) Alt int ∠'s are ≅ when lines ∥
3) ∠E is a right ∠	3) Angle inscribed in a semicircle is a right ∠
4) $\overline{CB} \perp \overline{AB}$	4) Tangent is ⊥ to a diameter at point of tangency
5) ∠ABC is a right ∠	5) ⊥ lines form right ∠'s
6) ∠E ≅ ∠ABC	6) Right ∠'s are ≅
7) $\triangle ABE \sim \triangle CAB$	7) AA

Given: chords $\overline{AB}$ and $\overline{CD}$ of circle O intersect at E, an interior point of circle O; chords $\overline{AD}$ and $\overline{CB}$ are drawn.
Prove: $(AE)(EB) = (CE)(ED)$ → $\frac{AE}{CE} = \frac{ED}{EB}$ → $\triangle ADE \sim \triangle CBE$



Statement	Reason
1) Chords $\overline{AB}$ & $\overline{CD}$ of circle O	1) Given
2) ∠D ≅ ∠B	2) Inscribed ∠'s that intercept the same arc are ≅
3) ∠AED ≅ ∠CEB	3) Vertical ∠'s are ≅
4) $\triangle ADE \sim \triangle CBE$	4) AA
5) $\frac{AE}{CE} = \frac{ED}{EB}$	5) corresponding sides of ~ △'s are in proportion
6) $(AE)(EB) = (CE)(ED)$	6) In a proportion, cross products are equal