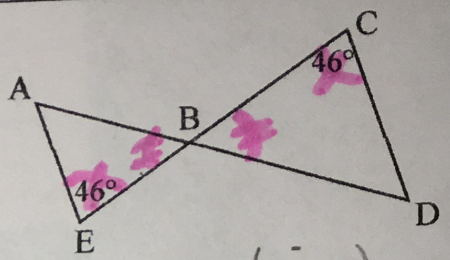
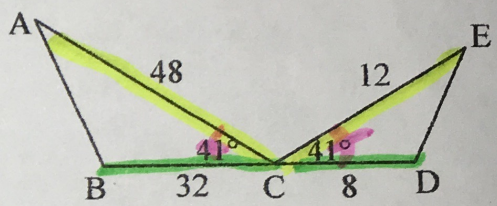
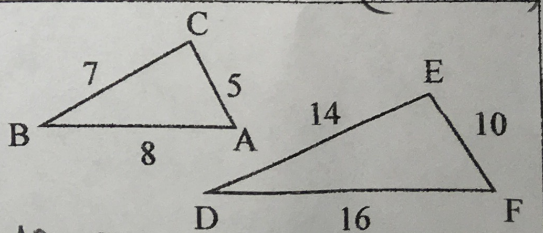
Triangle Similarity Theorems

Two polygons are similar if all corresponding angles are congruent and all corresponding pairs of sides are proportional. In triangles however, you can guarantee the triangles are similar with much less information.

AA Similarity Theorem (AA~ Thm)	**Angle-Angle Similarity Thm** Two triangles are similar if they have two pair of corresponding congruent angles.	 ∠AEB ≅ ∠DCB (given) ∠ABE ≅ ∠DBC (Vertical ∠ Thm) △ABE ~ △DBC (AA~ Thm)
SAS Similarity Theorem (SAS~ Thm)	**Side-Angle-Side Similarity** Two triangles are similar if they have one pair of corresponding congruent angles and the two sides that form those angles are proportional to the corresponding sides in the other △.	 ∠ACB ≅ ∠ECD (given) $\frac{BC}{DC} = \frac{32}{8} = \frac{4}{1}$ $\frac{AC}{EC} = \frac{48}{12} = \frac{4}{1}$ } ratio of corresponding sides △ABC ~ △EDC (SAS~ Thm)
SSS Similarity Theorem (SSS~)	**Side-Side-Side Similarity** Two triangles are similar if all three sides in one triangle are in the same proportion to the corresponding sides in the other.	 $\frac{AB}{FD} = \frac{8}{16} = \frac{1}{2}$ $\frac{BC}{DE} = \frac{7}{14} = \frac{1}{2}$ $\frac{AC}{FE} = \frac{5}{10} = \frac{1}{2}$ } ratios of corresponding sides (*) △ABC ~ △FDE (SSS~ Thm)

(*) This is finding the SCALE FACTOR (k) from one △ to another!