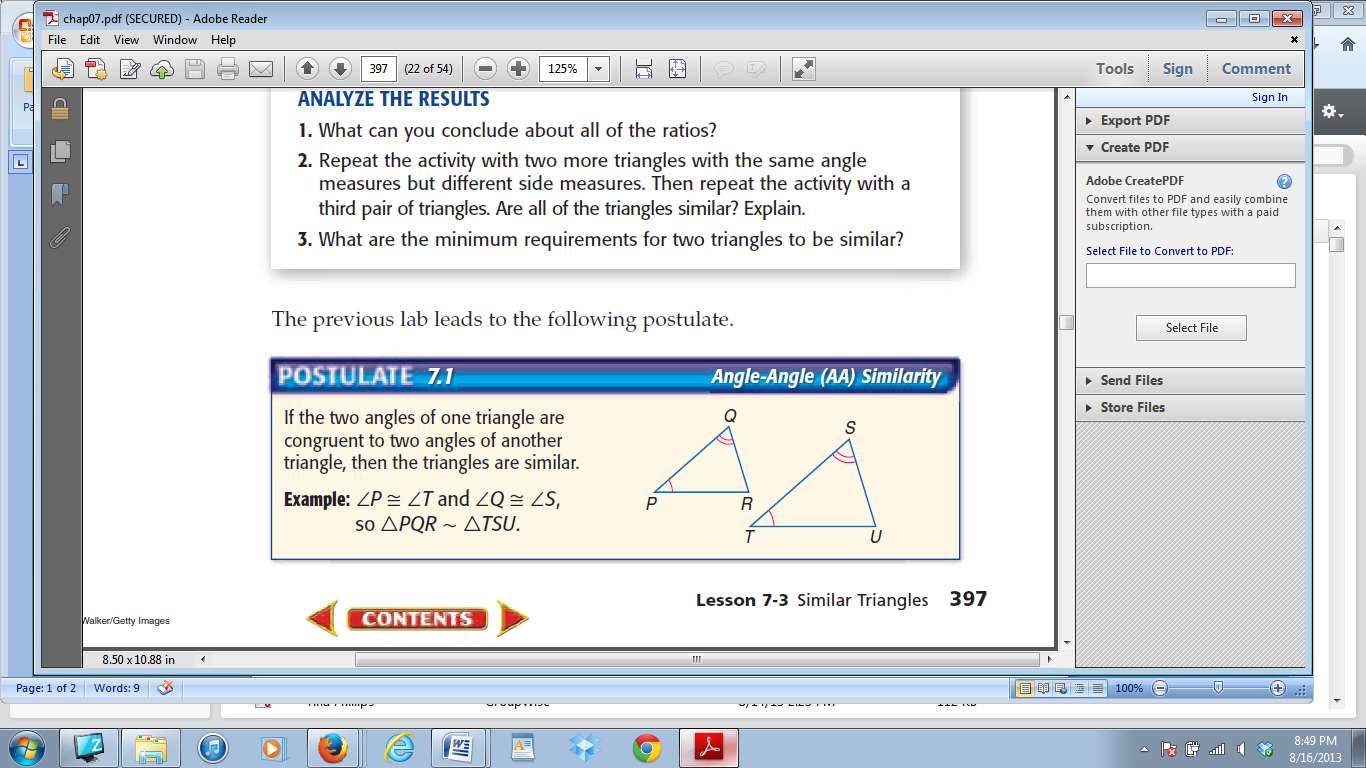
# Similar Triangles – Notes Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Angle-Angle Similarity (AA**~**) Theorem:**

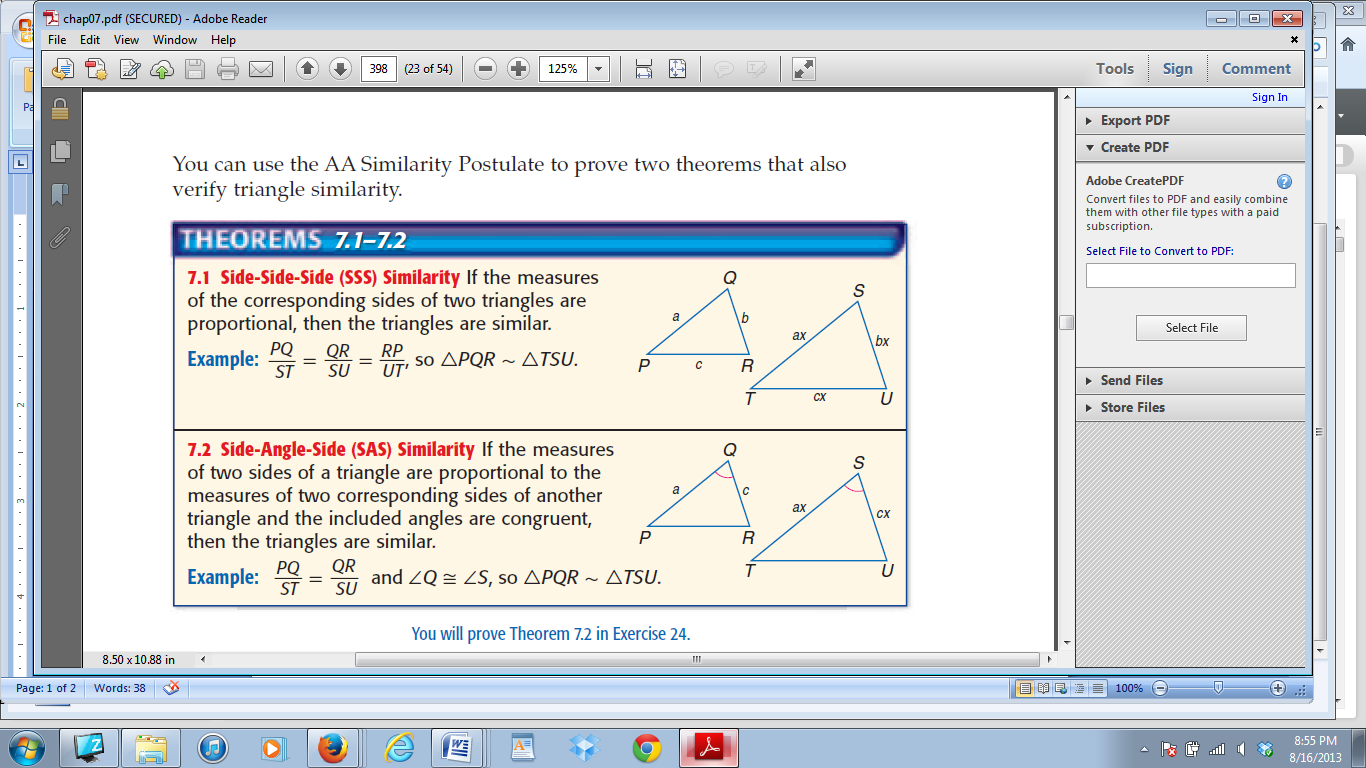


* If the two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar.

Example:

∠P ≅∠T and ∠Q ≅∠S, so ΔPQR ~ ΔTSU

**Side-Side-Side Similarity (SSS**~**) Theorem:**



* If the measures of the corresponding sides of two triangles are proportional, then the triangles are similar

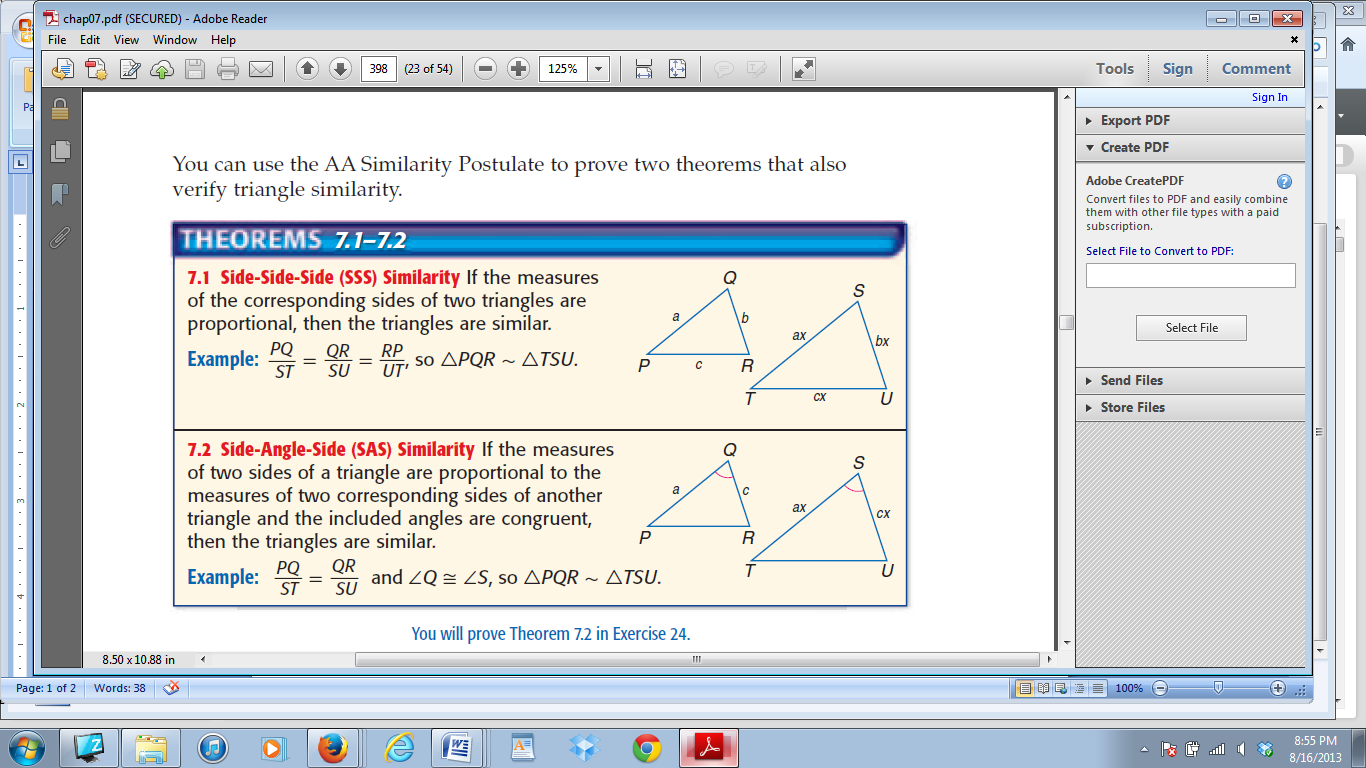
Example:

PQ = QR = RP, so ΔPQR ~ ΔTSU

ST SU UT

**Side-Angle-Side Similarity (SAS**~**) Theorem:**

* If the measures of two sides of a triangle are proportional to the measures of two corresponding sides of another triangle and the included angles are congruent, then the triangles are similar



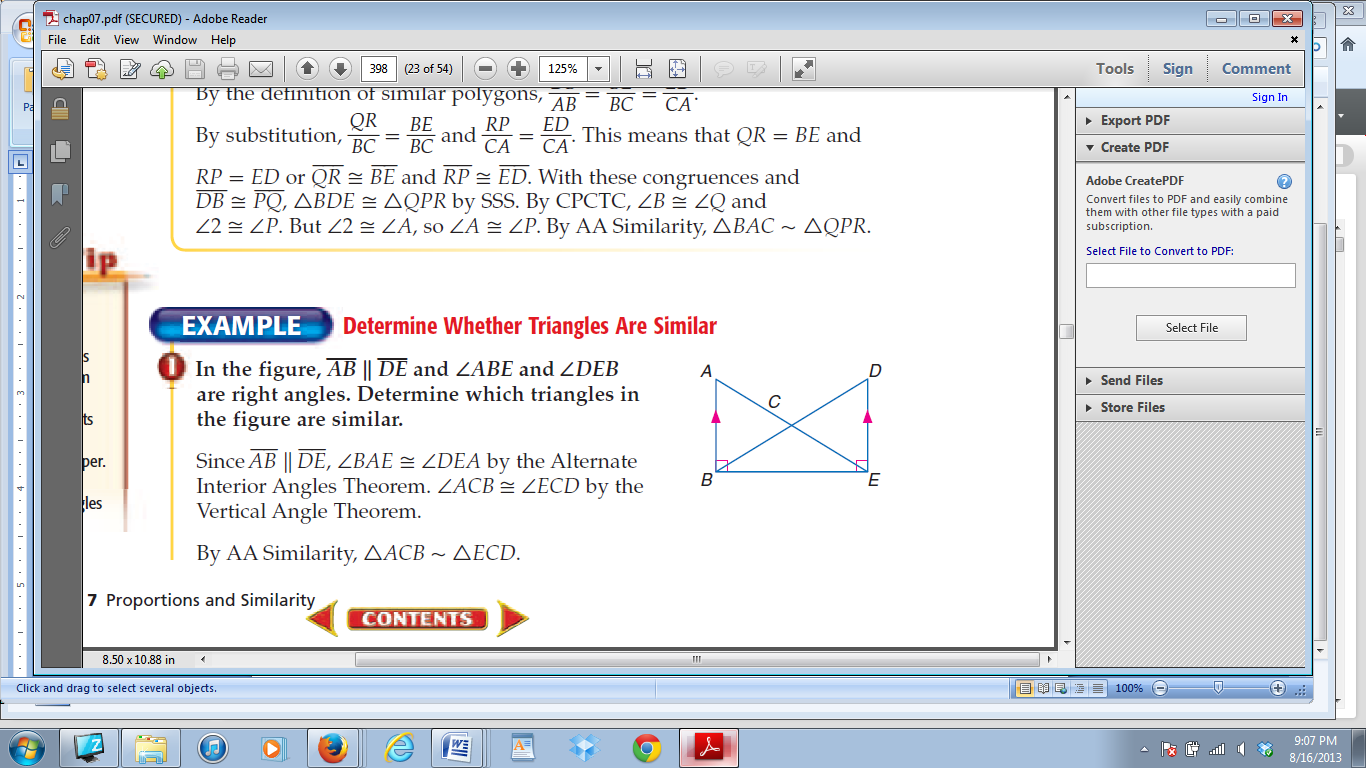
Example:

PQ = QR and ∠Q ≅∠S, so ΔPQR ~ ΔTSU

ST SU

**Example:**

In the figure, AB || DE and ∠ABE and ∠DEB are right angles.

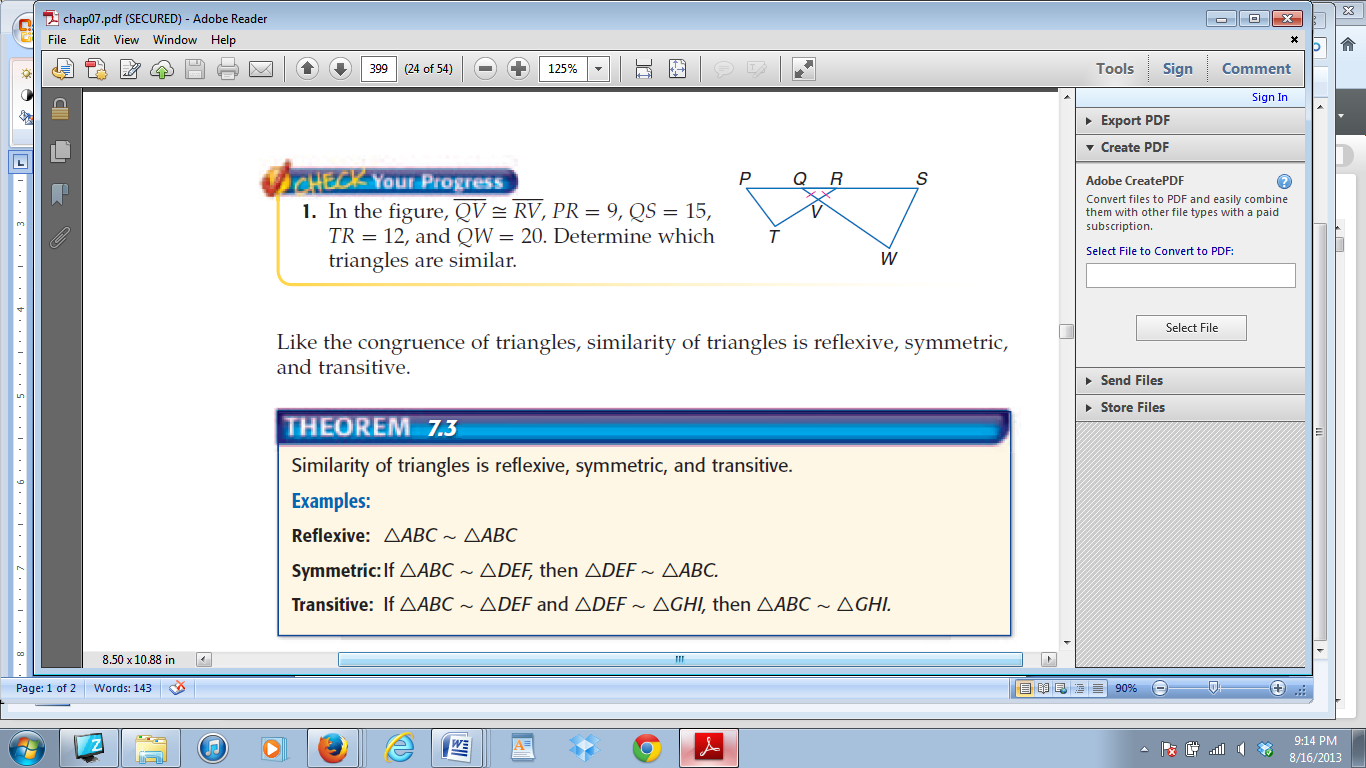


Determine which triangles in the figure are similar.

**Example:**

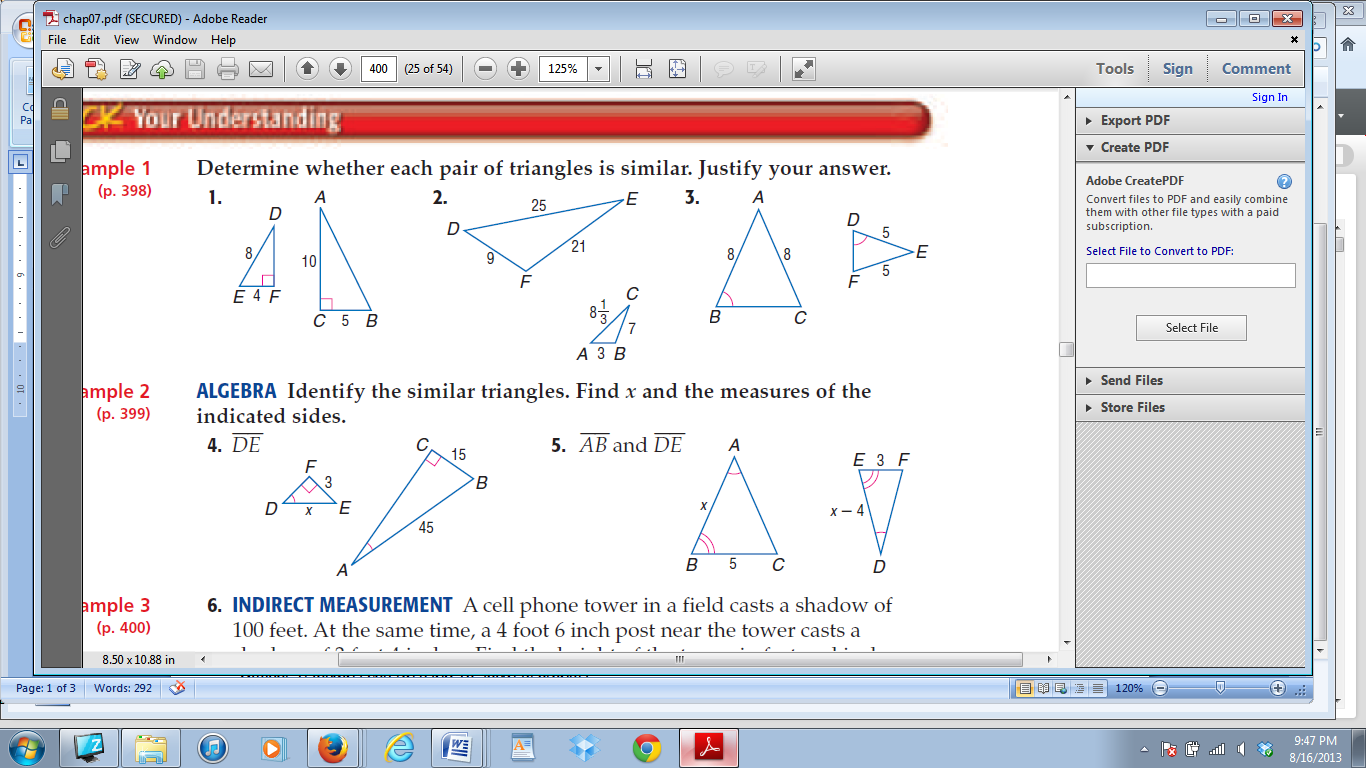
In the figure, QV ≅ RV, PR = 9, QS = 15, TR = 12, and QW = 20.

Determine which triangles are similar.



**Example:**

Identify the similar triangles. Find x and the measures of AB and DE.



x = \_\_\_\_\_\_\_

AB = \_\_\_\_\_\_\_

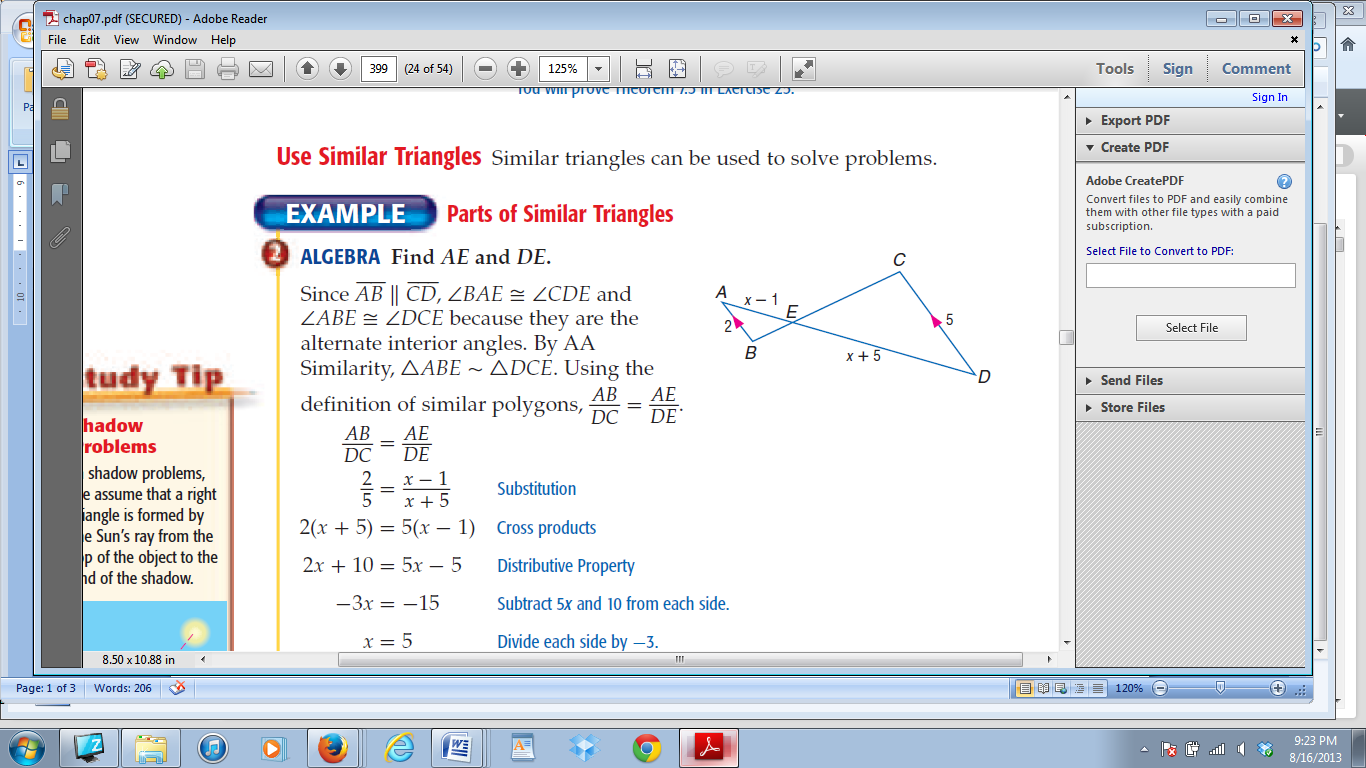
DE = \_\_\_\_\_\_\_

**Similarity of Triangles is Reflexive, Symmetric and Transitive:**

* **Reflexive:** ΔABC ~ ΔABC
* **Symmetric:** If ΔABC ~ ΔDEF, then ΔDEF ~ ΔABC
* **Transitive:** If ΔABC ~ ΔDEF and ΔDEF ~ ΔGHI, then ΔABC ~ ΔGHI

Similar triangles can be used to solve problems.

**Example:**



Find AE and DE. Show all work.

**Example:**

Hallie wants to determine the height of a roller coaster. She is 5 feet 3 inches tall and her shadow

is 3 feet long. If the length of the shadow of the roller coaster is 40 feet, how tall is the roller

coaster? Assume that the Sun’s rays form similar triangles. Draw and label a diagram that represents

the relationship between Hallie and the roller coaster. Show all work.

**Example:**

A cell phone tower in a field casts a shadow of 100 feet. At the same time, a 4 foot 6 inch post

near the tower casts a shadow of 3 feet 9 inches. Find the height of the tower in feet and inches.

Draw and label a diagram. Show all work.