6.4 Triangle Similarity

Shortcuts for proving triangles congruent. . .

SSS $∆≅ $post, SAS $∆≅ $post, ASA $∆≅ $post, AAS $∆≅ $thm,

and HL $∆≅$thm (for right triangles only)

Like proving triangles congruent, we have short cuts to prove that triangles are similar. There are 3 shortcuts.

Angle- Angle Similarity Postulate (AA $∆\~$Post)

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

Why would we need only two sets of congruent angles?

What theorem would allow us to say the third set of angles are congruent?

**Third Angle Theorem**

Practice Problems:

Are the two triangles similar? If so, explain why.

1)

2)

3)

What about two equilateral triangles?

Proof

Given: BC // DE

Prove: $\frac{AB}{AD}$ **=** $\frac{AC}{AE}$

Find the coordinates for point E so that $∆$ABC $\~$ $∆$ADE.

A(0, 0), B(0, 1), C(6, 0), D(0, 4), E(x, y).

(will help with #21-24 on tonight’s HW)