Notes

Lesson 3.2.4
More Conditions for Triangle Similarity

We have another short cut to prove if two triangles are similar. It's called Side-Side-Side Postulate or SSS.

SSS ~ (Triangle Similarity) pg. 862

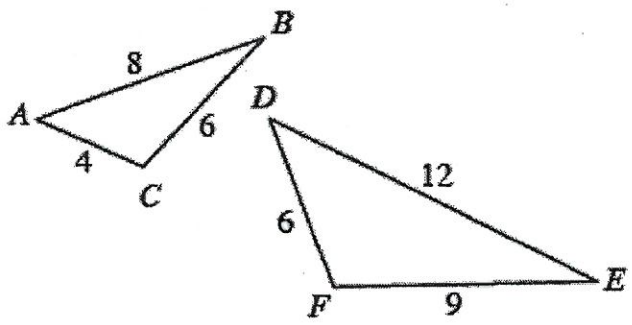
If two triangles have all 3 pairs of corresponding sides that are proportional (equal ratio), the triangles are ~.

To use this triangle similarity postulate you must set up a side ratio for all three sides and reduce*. If all the side ratios reduce* to the same thing, then the triangles are similar. If they do not reduce* to the same thing, then the triangles are not similar.

*Reduce or divide

3-85

Kendall now wants to figure out if three pairs of corresponding proportional side lengths (SSS ~) can be used to determine if triangles are similar. She decides to test triangles with side lengths 4, 6, and 8 units and 6, 9, and 12 units shown below.



$\frac{8}{12} = \frac{2}{3}$ $\frac{6}{9} = \frac{2}{3}$ $\frac{4}{6} = \frac{2}{3}$

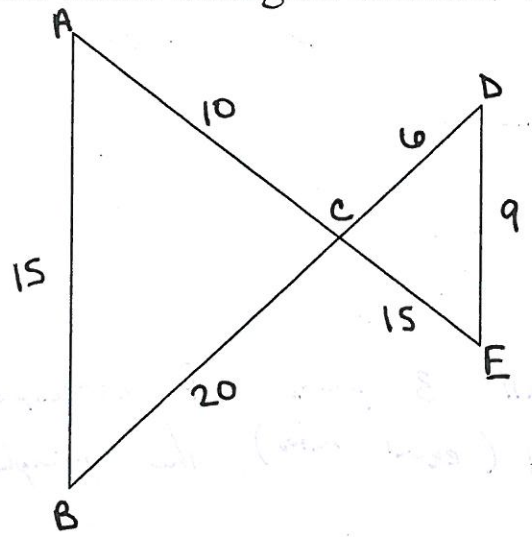
$\triangle CAB \sim \triangle FDE$

SSS~

Are the triangles similar? Organize your proof in a flow chart.

Yes

Are these triangles similar? Justify your answer.



$\frac{20}{15} = 1.\overline{3}$ $\frac{10}{6} = 1.\overline{6}$ $\frac{15}{9} = 1.\overline{6}$

Not a 3 ratios $\cong$

$\therefore$ not $\sim$ $\triangle$

List all of the postulates we have to prove that two triangles are similar.

AA~

SAS~

SSS~