http://morton201east350.weebl... Luke Brzostowski - Outlook W... morton201east350.weebly....

McAfee

February 25 2013 H.gwb - 1/4 - Mon Feb 25 2013 16:12:24

8.3. Honors Geometry

DATE: 2/3

Target LE: Justify & conclude that AA~ is a sufficient condition for 2 Δs to be ~.

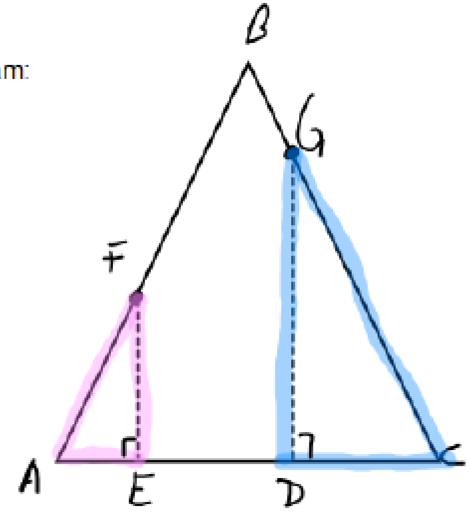
So what is sufficient? According to Nspire activity, there are three ways

- ~AA ⟶ most often used
- ~SSS
- ~SAS

10. From two points, one on each leg of an isosceles triangle, perpendicular segments are drawn to the base. Prove that the triangles formed are similar.

Given: $\triangle ABC$ is isosceles w/ base $\overline{AC}$
$\overline{FE} \perp \overline{AC}$, $\overline{GD} \perp \overline{AC}$

Diagram:



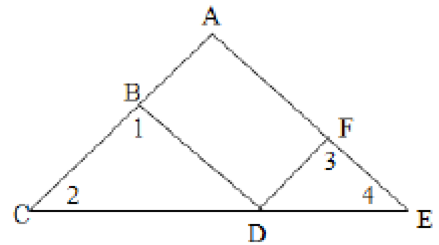
Prove: $\triangle AEF \sim \triangle CDG$

Statement	Reason
① $\triangle ABC$ iso, base $\overline{AC}$, $\overline{FE} \perp \overline{AC}$, $\overline{GD} \perp \overline{AC}$	① Given
② $\angle FEA$, $\angle GDC$ rt.	② Def. of $\perp$.
③ $\angle FEA \cong \angle GDC$	③ Right $\angle$s $\cong$.
④ $\overline{AB} \cong \overline{BC}$	④ Def. of iso. $\triangle$.
⑤ $\angle A \cong \angle C$	⑤ $\triangle \Rightarrow \triangle$
⑥ $\triangle AEF \sim \triangle CDG$	⑥ $\sim$ AA (3,5)

8.3 Methods of Proving Triangles ~ [Compatibility Mode] - Microsoft Word

12. Given: $AC \cong AE$
$\angle 1 \cong \angle 3$

Prove: $\Delta BCD \sim \Delta FED$

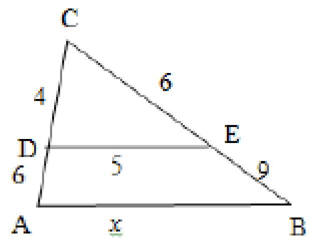


Statement	Reason
① $\overline{AC} \cong \overline{AE}$	① Given
② $\angle 1 \cong \angle 3$	② Given
③ $\angle C \cong \angle E$	③ $\triangle \Rightarrow \triangle$
④ $\Delta BCD \sim \Delta FED$	④ $\sim$ AA (2, 3)

13. **a)** Based on the figure, is $\Delta CDE \sim \Delta CAB$? Why?

b) Is DE parallel to AB? Why or why not?

c) Find *x*.



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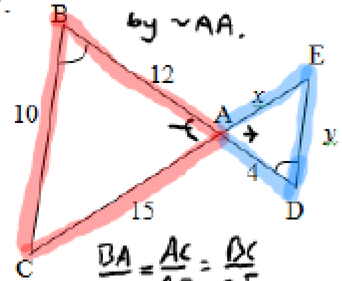
For problems 7-9, identify the similar triangles in each figure. Explain why they are similar and find the value of each variable.

7. $\triangle BAC \sim \triangle DAE$ by ~AA.



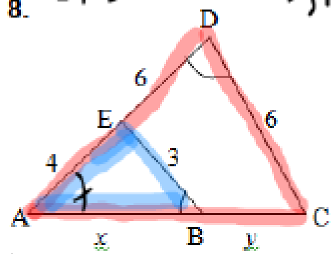
$\frac{BA}{DA} = \frac{AC}{AE} = \frac{BC}{DE}$

$\frac{12}{4} = \frac{15}{x} \Rightarrow x = 5$

$\frac{12}{4} = \frac{10}{y} \Rightarrow \frac{12y}{12} = \frac{40}{12}$

$y = 40/12 = 10/3$

8. $\triangle ABE \sim \triangle ADC$ by ~AA



$\frac{AB}{AD} = \frac{BE}{DC} = \frac{AE}{AC}$

$\frac{x}{10} = \frac{3}{6} = \frac{4}{x+y}$. So

$\frac{x}{10} = \frac{3}{6} \Rightarrow x = 5$. By subst.,

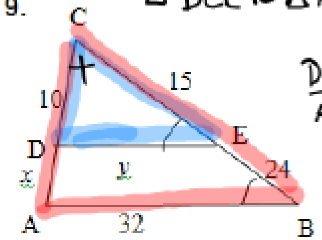
$\frac{3}{6} \times \frac{4}{(5+y)} \Rightarrow$ $3(5+y) = 6(4)$

$15 + 3y = 24$

$-15 \qquad -15$

$3y = 9 \Rightarrow y = 3$

9. $\triangle DCE \sim \triangle ACB$ by ~AA



$\frac{DC}{AC} = \frac{CE}{CB} = \frac{DE}{AB}$

$\frac{10}{x+10} = \frac{15}{39} = \frac{y}{32}$. So

$\frac{y}{32} \times \frac{15}{39} \Rightarrow 39 \cdot y = 480 \Rightarrow y = \frac{480}{39} = \frac{160}{13}$

$\frac{10}{(x+10)} \times \frac{15}{39} \Rightarrow 390 = 15(x+10)$

$390 = 15x + 150$

$240 = 15x \Rightarrow x = 16$

10. From two points, one on each leg of an isosceles triangle, perpendicular segments are drawn to the base. Prove that the triangles formed are similar.

Given: Diagram: