Module 2d: Proportional Side Lengths

Math Practice(s):

-Reason abstractly & quantitatively

-Construct viable arguments & critique the reasoning of others

Learning Target(s):

-Use proportions in similar triangles.

Homework:

HW #10: 2d #1-3

Aug 8-12:20 PM

Warm-up

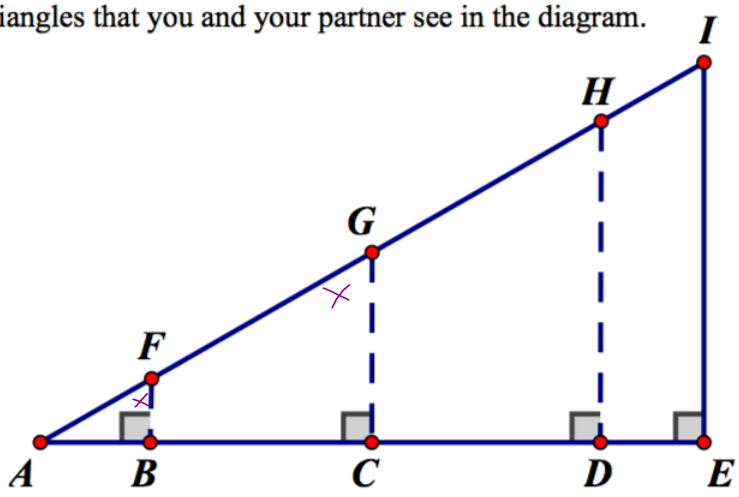
1. Analyze the diagram below and discuss with a partner how many different triangles you can identify. Write down the name of all triangles that you and your partner see in the diagram.

△ABF

△ACG

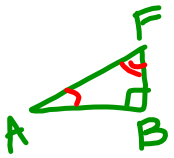
△ADH

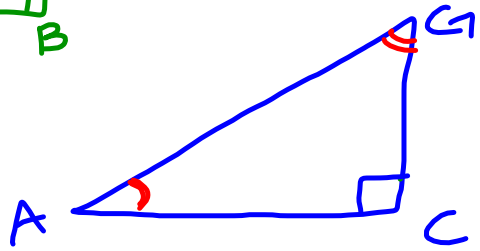
△AEI



2. Compare all of the triangles (in the diagram above) that you and your partner were able to identify. Are they all similar? Work with a partner to decide whether or not all of the triangles are similar. Then write down a justification explaining how you know that they are or are not similar.

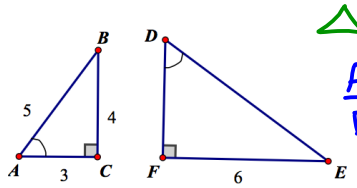
All the △s are ~ because they each have a rt ∠ & 1 acute ∠ that is ≅, making the third ∠'s ≅ to each other.





For each pair of similar triangles, write a similarity statement to accurately represent the relationship between the two triangles. Then, determine the lengths of all sides whose measures are not provided in the diagram. Be sure to show work for or explain how you found the lengths of the missing sides.

3.



$\triangle BCA \sim \triangle EFD$

$\frac{AC}{DF} = \frac{BC}{EF} = \frac{BA}{ED}$

$\frac{4}{6} \rightarrow \frac{2}{3}$

$\frac{AC}{DF} = \frac{2}{3}$ $\frac{BA}{ED} = \frac{2}{3}$

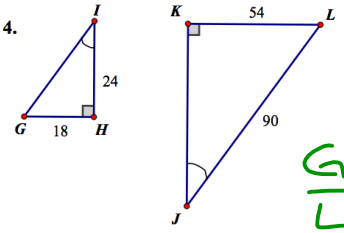
$\frac{3}{DF} \times \frac{2}{3}$ $\frac{5}{ED} \times \frac{2}{3}$

$2(DF) = 9$ $2(ED) = 15$

$DF = \frac{9}{2}$ units ≈ 4.5 units

$ED = \frac{15}{2}$ units ≈ 7.5 units

4.



$\triangle GHI \sim \triangle LKJ$ $\frac{1}{3}$

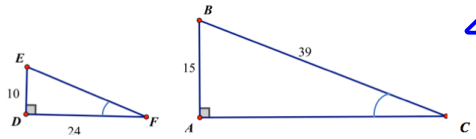
$\triangle KLJ \sim \triangle HGI$ 3

$\frac{GH}{LK} = \frac{HI}{KJ} = \frac{GI}{LJ}$

$GI = 30$ units

$JK = 72$ units

5.



$\triangle DEF \sim \triangle ABC$ $\frac{2}{3}$

$\triangle ABC \sim \triangle DEF$ $\frac{3}{2}$

$\frac{DE}{AB} = \frac{EF}{BC} = \frac{DF}{AC}$

$\frac{10}{15} \rightarrow \frac{2}{3}$

$\frac{EF}{BC} = \frac{2}{3}$ $\frac{DF}{AC} = \frac{2}{3}$

$\frac{EF}{39} \times \frac{2}{3}$ $\frac{24}{AC} \times \frac{2}{3}$

$3(EF) = 78$ $2(AC) = 72$

$EF = 26$ units $AC = 36$ units