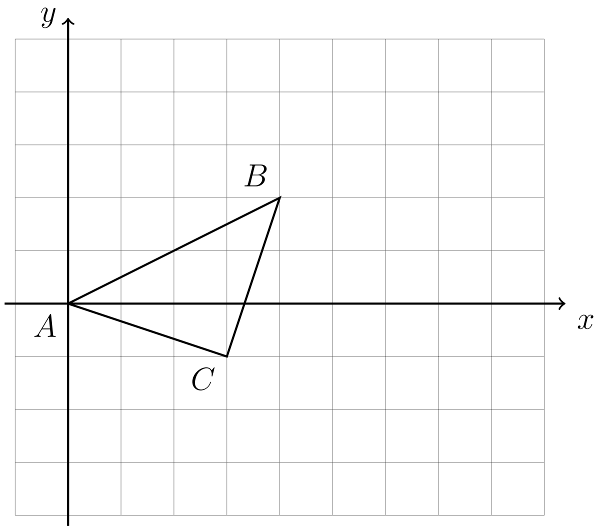
Name:

BECA / Dr. Huson / Geometry 7 Similarity

7.2 Classwork: Scale factor **CCSS.HSG.SRT.B.5**

1. Dilate the triangle $ABC \to A'B'C'$ by a factor of $k = 2$ centered at the origin.



Complete the table of coordinate mappings.

$A(0,0) \to A'(0,0)$

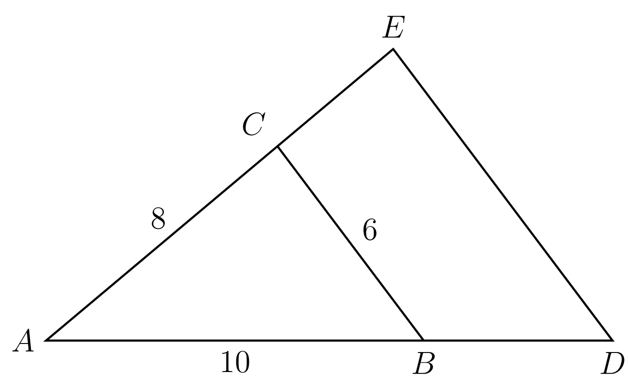
2. A dilation centered at A with a scale factor of $k = \frac{3}{2}$ maps $\triangle ABC \to \triangle ADE$.

Given $AB = 10$, $BC = 6$, and $AC = 8$. Complete the table and mark the diagram.

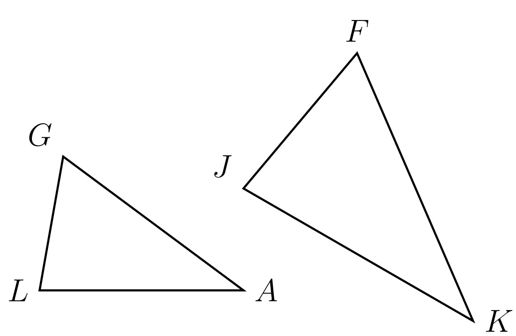
$AD = \frac{3}{2} \times 10 =$

$DE =$

$AE =$



3. Definition: $\triangle LGA \sim \triangle JFK$ if and only if all three corresponding angles are congruent.



Are the given triangles similar?

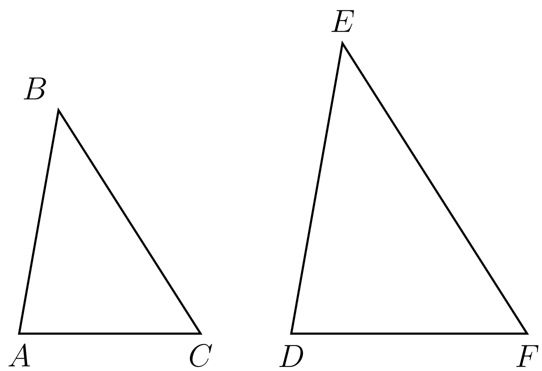
(a) $m\angle L = 80°$, $m\angle A = 43°$

Find $m\angle G =$ __________

(b) $m\angle J = 80°$, $m\angle F = 57°$

Find $m\angle K =$ __________

4. Given $\triangle ABC \sim \triangle DEF$. Mark the legs $AB = 12$, $BC = 18$, $AC = 9$, and $DE = 15$.



Find the scale factor and missing sides.

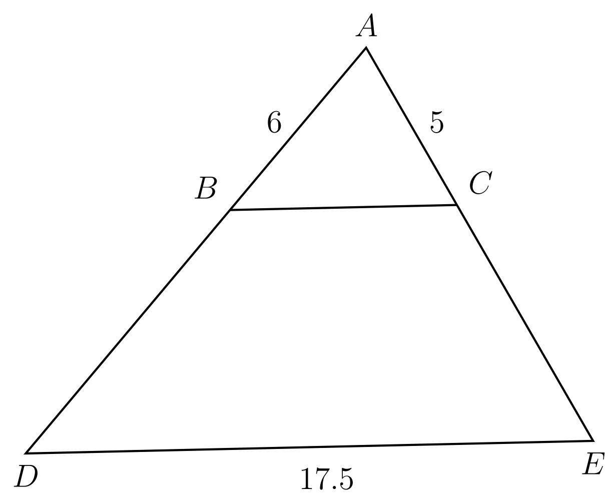
(a) $k = \dfrac{DE}{AB} =$

(b) $EF = k \times BC =$

(c) $DF =$

5. Triangle ABC is dilated with a scale factor of $k = 2.5$ centered at A, yielding $\triangle ADE$, as shown. Given $AB = 6$, $AC = 5$, and $DE = 17.5$.

Find AD, AE, and BC. Then find BD and CE.



6. Theorem: If two triangles have to congruent pairs of corresponding angles, then the triangles are similar.

How would you prove this theorem, starting with the definition in #3, above.

Name:

Definition of *similar* triangles: Triangles that have the same shape, but not necessarily the same size, are similar. Their corresponding angles are congruent and their corresponding sides are proportional.

Dilation definition of similarity: Two figures are similar if one or more rigid motions and a dilation will carry one figure onto the other.