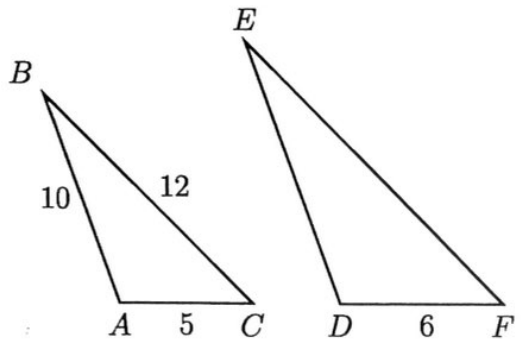
9.3 Classwork: Overlapping triangles **CCSS.HSG.SRT.B.5**

1. A dilation maps $\triangle ABC \to \triangle DEF$, with $AB = 10$, $BC = 12$, $AC = 5$, and $DF = 6$.



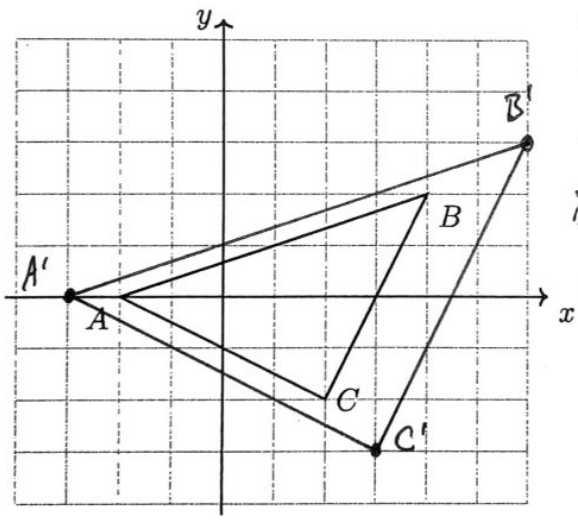
Find the scale factor and missing sides.

(a) $k = \frac{6}{5}$

(b) $DE = \frac{6}{5}(10) = 12$

(c) $EF = \frac{6}{5}(12) = 14.4$

2. Dilate the triangle $ABC \to A'B'C'$ by a factor of $k = 1.5$ centered at the origin.



Complete the table of coordinate mappings.

$A(-2, 0) \to A'(-3, 0)$

$B(4, 2) \to B'(6, 3)$

$C(2, -2) \to C'(3, -3)$

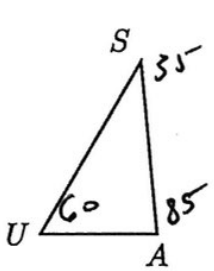
3. Given $\triangle USA \sim \triangle MEX$ and $m\angle U = 60°$, $m\angle A = 85°$. Find the remaining angle measures.

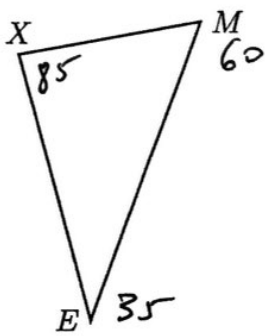
$m\angle M = 60$ $m\angle X = 85$

$60 + 85 + m\angle S = 180$

$m\angle S = 35°$

$m\angle E = 35$





4. A dilation centered at A with a scale factor of $k = 1.75$ maps $\triangle ABC \to \triangle ADE$. Given $AB = 12.4$, $AC = 8.8$, $DE = 13.3$.

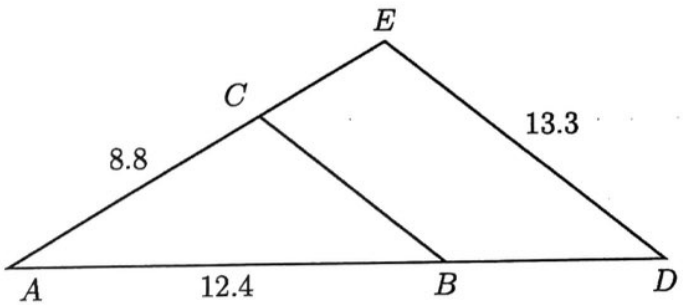
   Find the remaining side lengths.

$AD = 1.75(12.4) = 21.7$

$AE = 1.75(8.8) = 15.4$

~~BC~~ $ED = 1.75(BC) = 13.3$

$BC = \frac{13.3}{1.75} = 7.6$



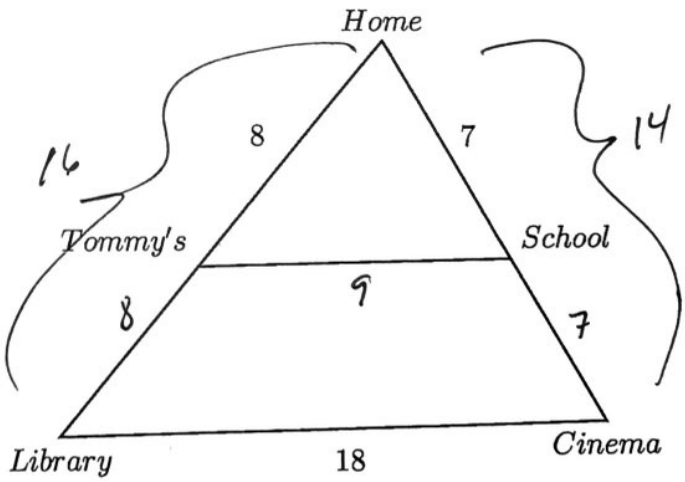
5. Triangle HTS, where $H = Home$, is dilated with a scale factor of $k = 2$ centered at H, yielding $\triangle HLC$, as shown.

   Given $HT = 8$ blocks, $HS = 7$ blocks, and $LC = 18$ blocks. There are twenty blocks to a mile.

   (a) Steven walks from school to Tommy's and then walks home. What fraction of a mile did he walk?

$d = 9 + 8 = 17$ Blocks

$\frac{17}{20}$ of a mile



   (b) Steven's sister, Marie, goes to the cinema after school and then walks back home. Did she walk more or less than a mile?

$d = 7 + 14 = 21$

$21 > 20$ more than a mile