BECA/Huson/Geometry: Similarity   First and last name:
4 December 2024   Section:
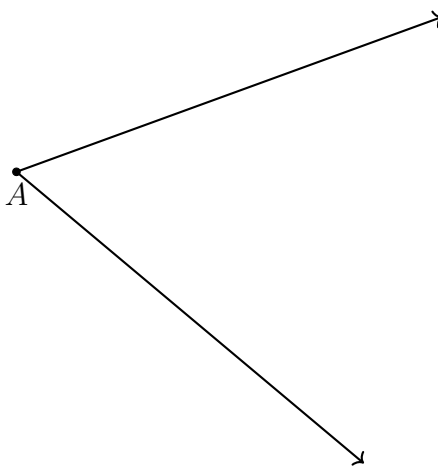
3.17 PreTest: Dilation and similarity

1. Given $\overline{DEF}$, $DE = 7$, and $EF = 2\frac{1}{3}$. Find DF.

D ———————————— E ——— F
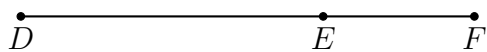
2. Point G bisects $\overline{FH}$, with $FG = 5x + 2$, $GH = 17$. Find x.

$5x + 2$ 17
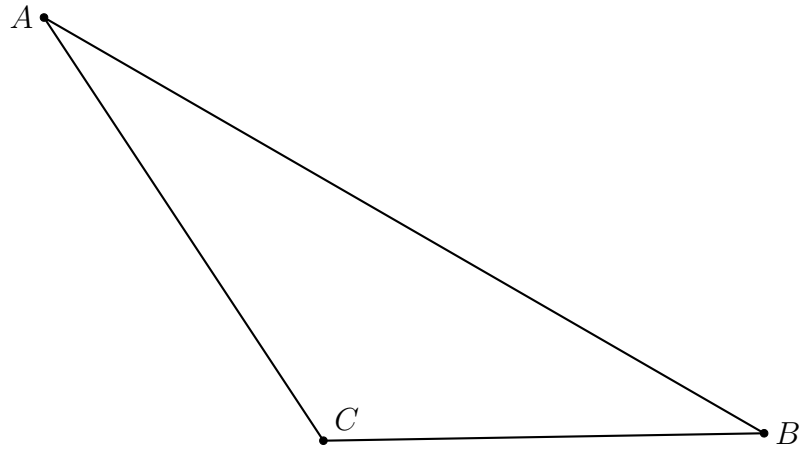
F ————————— G ————————— H
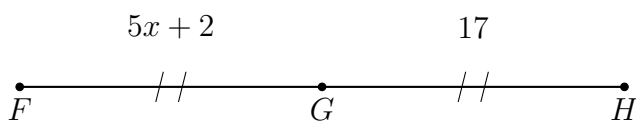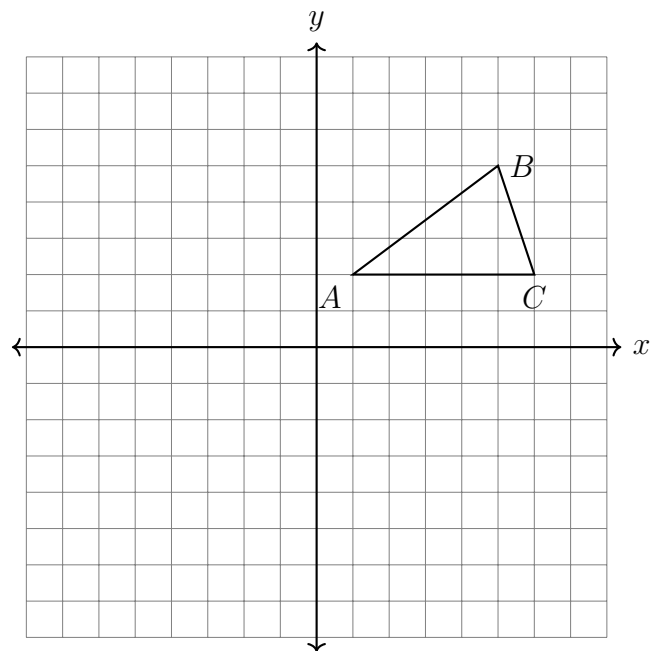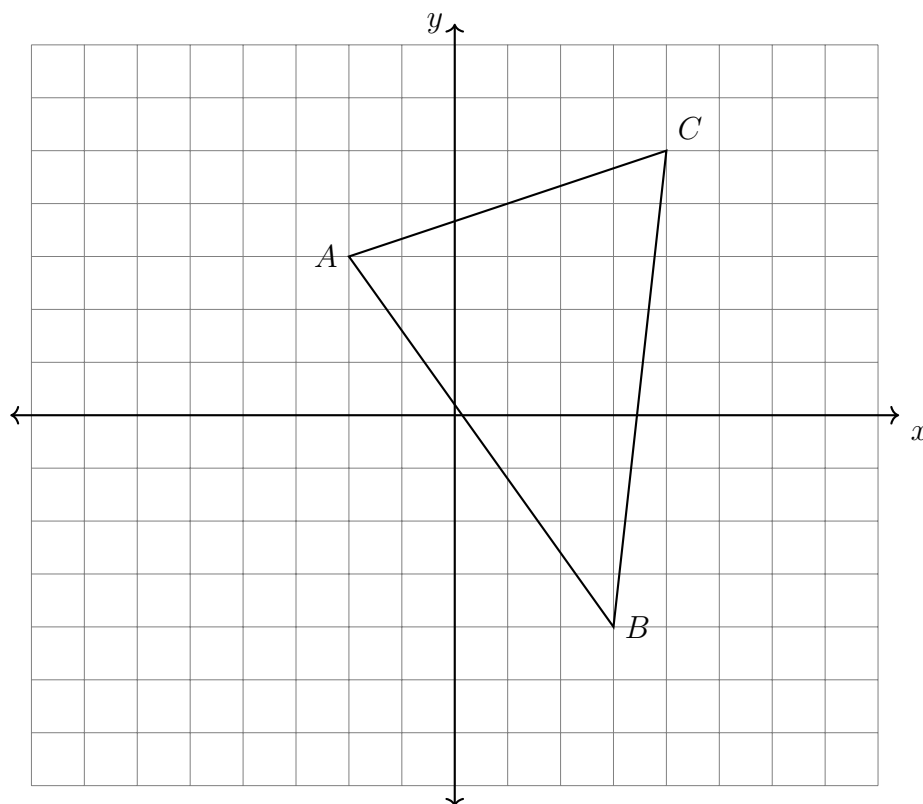
3. Bisect the given angle.

4. Construct a perpendicular to $\overline{AB}$ though C.

5. Apply a clockwise rotation of $90°$ centered at the origin to $\triangle ABC$. Plot and label the image on the axes below.

BECA/Huson/Geometry: Similarity   First and last name:

4 December 2024   Section:

6. Reflect $\triangle ABC$ across the y-axis. Label the image $\triangle A'B'C'$ on the graph.

7. A translation is applied to $\triangle ABC$ moving it to the left 4 and down 3.

   (a) Write as coordinate pairs the vertices of the image, $\triangle A'B'C'$

      $A(3, -4) \rightarrow$
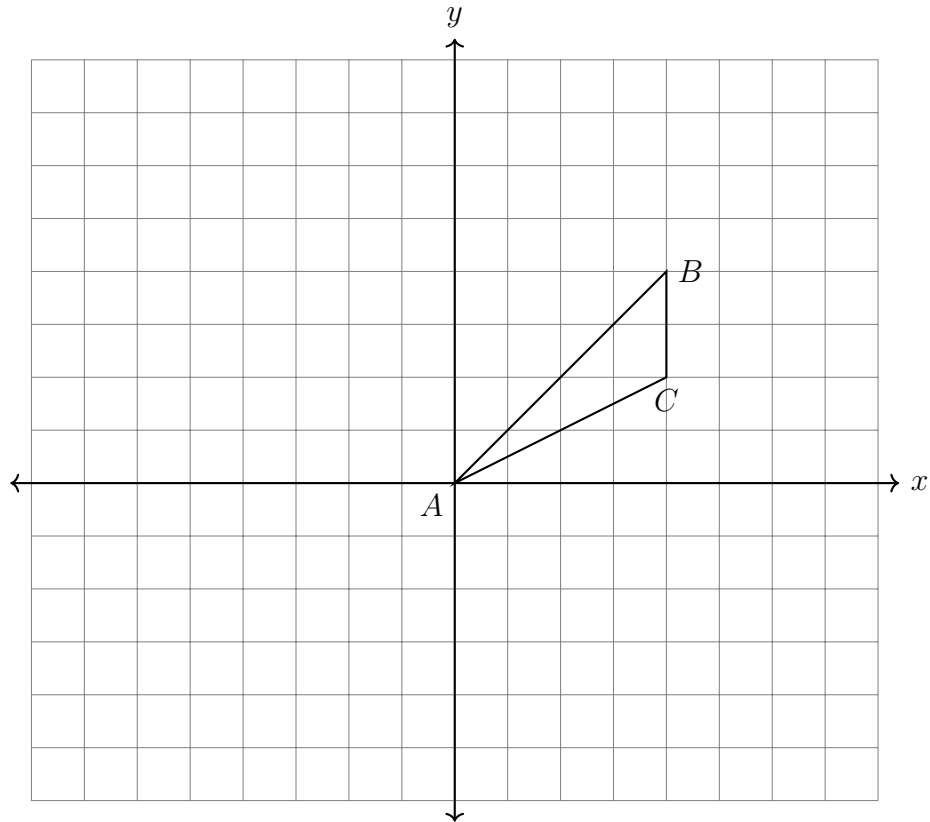
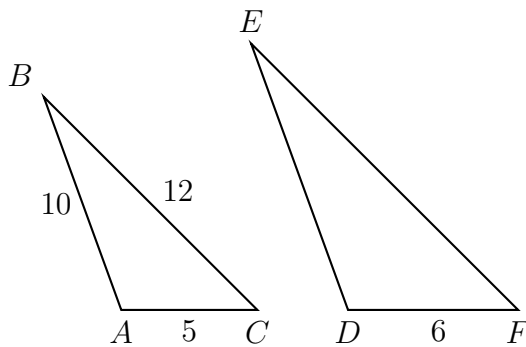 $B(5, -3) \rightarrow$

      $C(0, 2) \rightarrow$

   (b) Which triangle is larger, or are they the same size? Justify your answer.

8. A translation maps $D(1, 4) \rightarrow D'(4, -1)$. What is the image of $E(-2, -3)$ under the same translation?

9. Reflect $\triangle ABC$ across the y-axis. Then, dilate $\triangle A'B'C'$ by a factor of k $= 1.5$ centered at the origin to produce $\triangle A''B''C''$. Plot and label the two triangles in the graph below.

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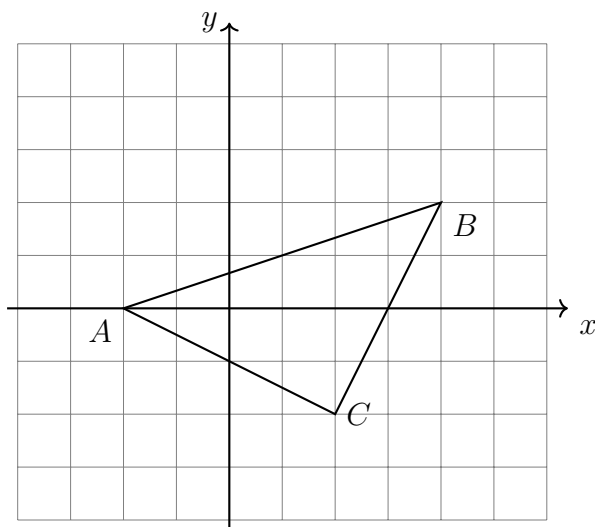

Find the scale factor and missing sides.
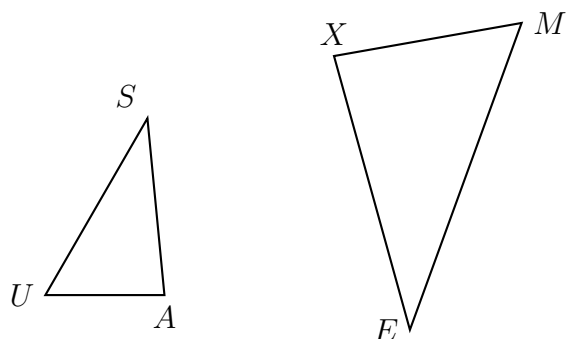
(a) $k =$

(b) $DE =$

(c) $EF =$

BECA/Huson/Geometry: Similarity   First and last name:
4 December 2024   Section:

11. 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.

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

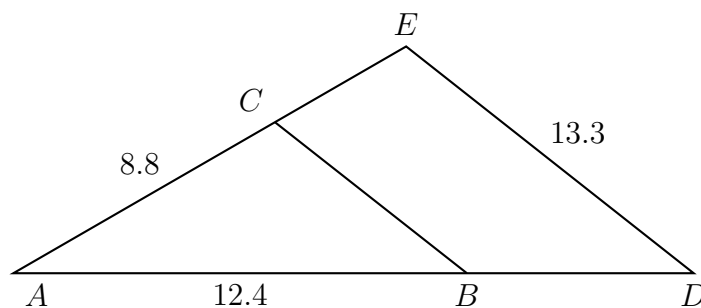12. Given $\triangle USA \sim \triangle MEX$ and $m\angle U = 60°$, $m\angle A = 85°$. Find the remaining angle measures.

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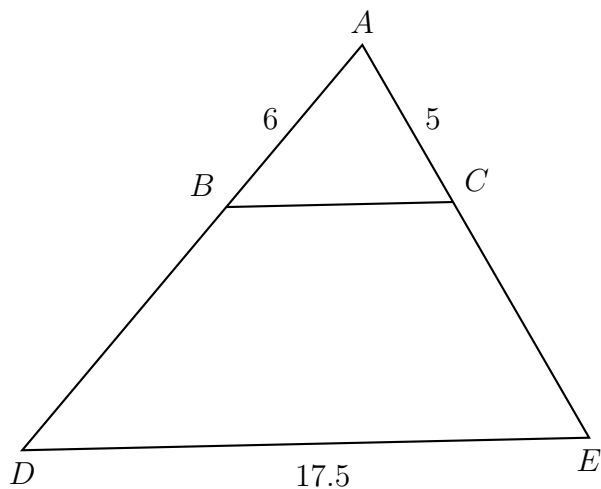
Find the remaining side lengths.

$AD =$

$AE =$

$BC =$

14. 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.

15. A dilation centered at the origin and scale factor k maps $P(2,5) \to P'(5, 12.5)$. Find k.

16. In the diagram below, $\triangle ABC \sim \triangle DEF$, $DE = 6$, $AB = x$, $AC = 2x$, and $DF = 2x+4$. Determine the length of $\overline{AB}$.