7.1 Homework: Similar triangles, dilations

1. Given $\triangle ABC \sim \triangle ADE$ with sides $AC = 7$, $BC = 4$, $AB = 8$, and of $DE = 10$ find the scale factor k and the lengths AD and AE. Then find CE and BD.

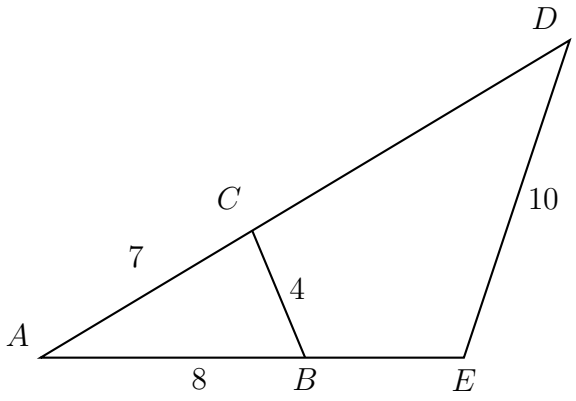
   (a) $k =$

   (b) $AD =$

   (c) $AE =$

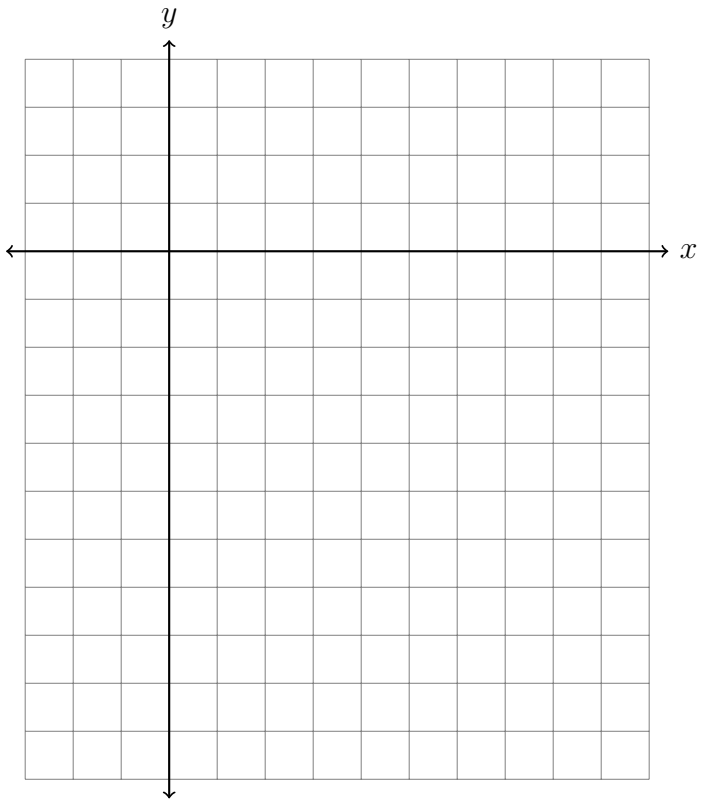
   (d) $CE =$

   (e) $BD =$

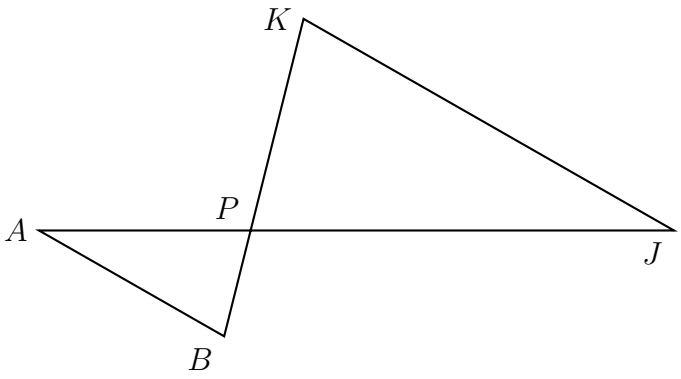


2. After a dilation centered at the origin, the image of $\overline{AB}$ is $\overline{A'B'}$. If the coordinates of the endpoints of these segments are $A(-1, -3)$, $B(4, -5)$, $A'(-2, -6)$, and $B'(8, -10)$, find the scale factor of the dilation.

   Make a table of coordinate pairs and graph the two line segments, $\overline{AB}$ and $\overline{A'B'}$, on the set of axes below.



3. Given $\triangle ABP \sim \triangle JKP$ as shown below. $AB = 9.6$, $AP = 12.0$, $BP = 6.3$, and $JK = 14.4$. Find JP.



4. In the diagram below of $\triangle ABC$, D is a point on $\overline{BA}$, E is a point on $\overline{BC}$, and $\overline{DE}$ is drawn.
   If $BD = 5$, $DA = 12$, and $BE = 7$, what is the length of $\overline{BC}$ so that $\overline{AC} \parallel \overline{DE}$?