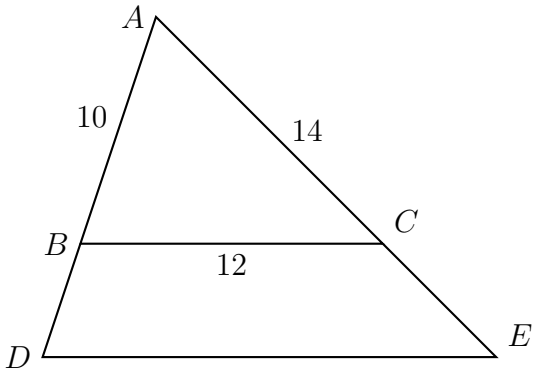
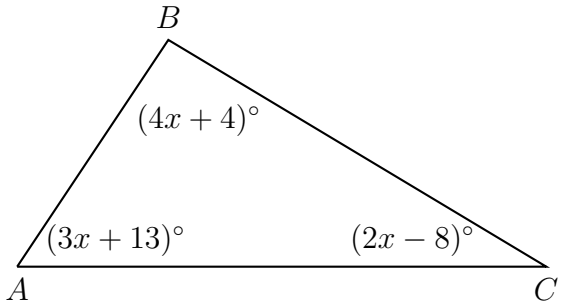
5.8b Do Now: Similar triangles, dilation ratios

1. Triangle ABC is dilated with a factor of $\frac{3}{2}$ centered at A, yielding $\triangle ADE$, as shown. Given $AB = 10$, $BC = 12$, and $AC = 14$.

   Find AD, AE, and DE.



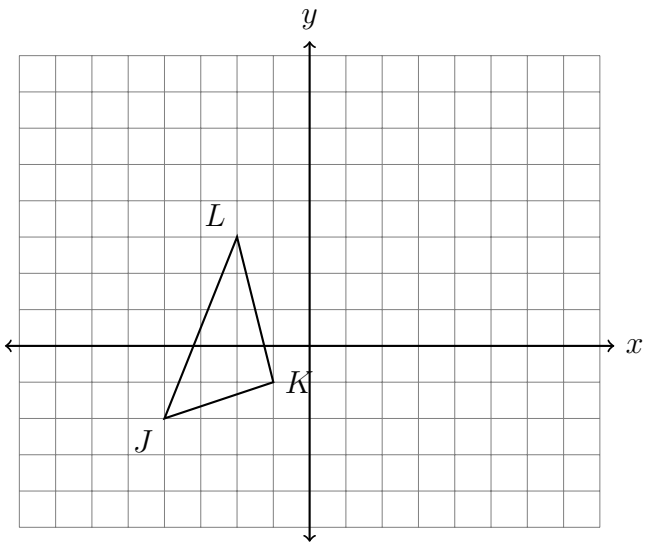
2. In $\triangle ABC$ shown below, $m\angle A = (3x+13)°$, $m\angle B = (4x+4)°$, and $m\angle C = (2x-8)°$. What is $m\angle A$?



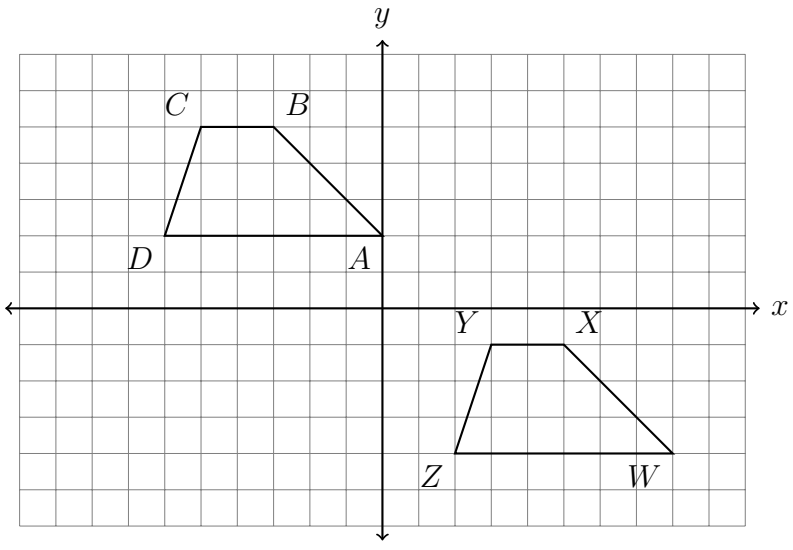
3. Find the image of $A(-3, 1)$ after the translation $(x, y) \rightarrow (x + 4, y - 2)$.

4. The vertices of $\triangle JKL$ have the coordinates $J(-4, -2)$, $K(-1, -1)$, and $L(-2, 3)$, as shown below.

   Apply a translation of $(x, y) \rightarrow (x + 7, y + 2)$ to $\triangle JKL$ yielding the triangle $\triangle J'K'L'$. List its coordinates in a table and plot it on the set of axes below, labeling the vertices.

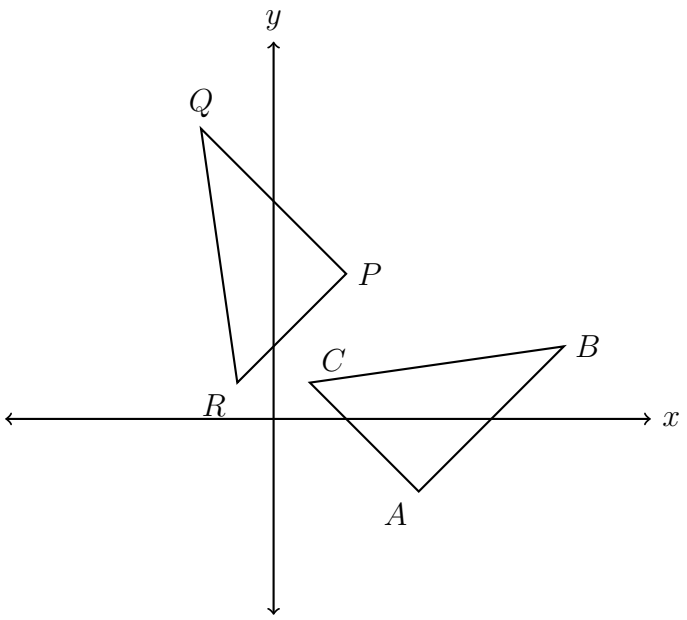


5. The trapezoid $ABCD$, shown below, undergoes a rigid transformation carrying it onto trapezoid $WXYZ$. State the transformation. (be specific)

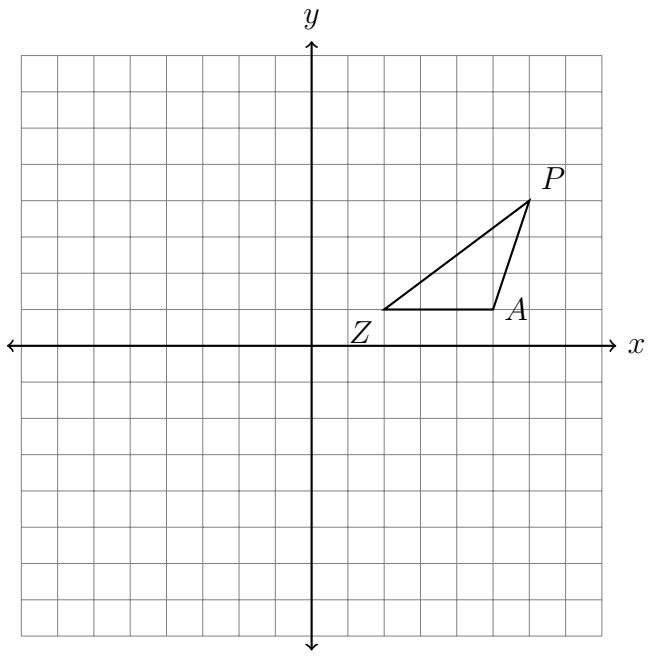


6. A rotation of 90° is applied to $\triangle ABC$, mapping it onto $\triangle PQR$, as shown.

   Which triangle has the larger area, or are they equal? Justify your answer.



7. Apply a rotation of 90° counterclockwise to $\triangle ZAP$. Plot and label $\triangle Z'A'P'$ on the axes below and make a table listing its coordinates.

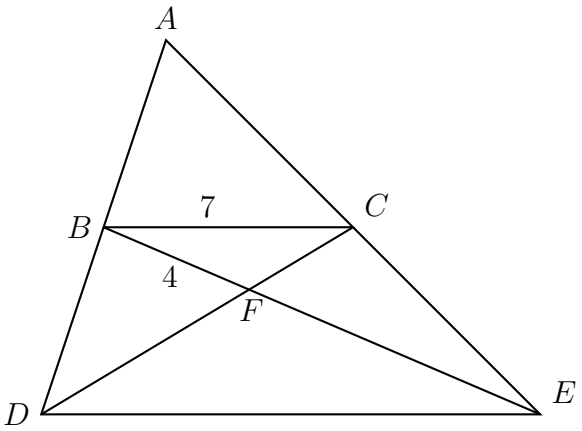


8. Triangle ADE and its midline $\overline{BC}$ are drawn, with B the midpoint of $\overline{AD}$ and C the midpoint of $\overline{AE}$. The two medians $\overline{AE}$ and $\overline{AE}$ are drawn, as shown, intersecting in point F, the centroid.

   $\triangle FCB \sim \triangle FDE$ with scale factor $k = 2$.

   Given $BC = 7$, find DE.

   Given $BF = 4$, find FE.



9. Given $\triangle ABP \sim \triangle JKP$ as shown below. $\overline{AB} \parallel \overline{JK}$. $AP = 5.7$, $JP = 11.4$, and $JK = 14.8$. Find AB.