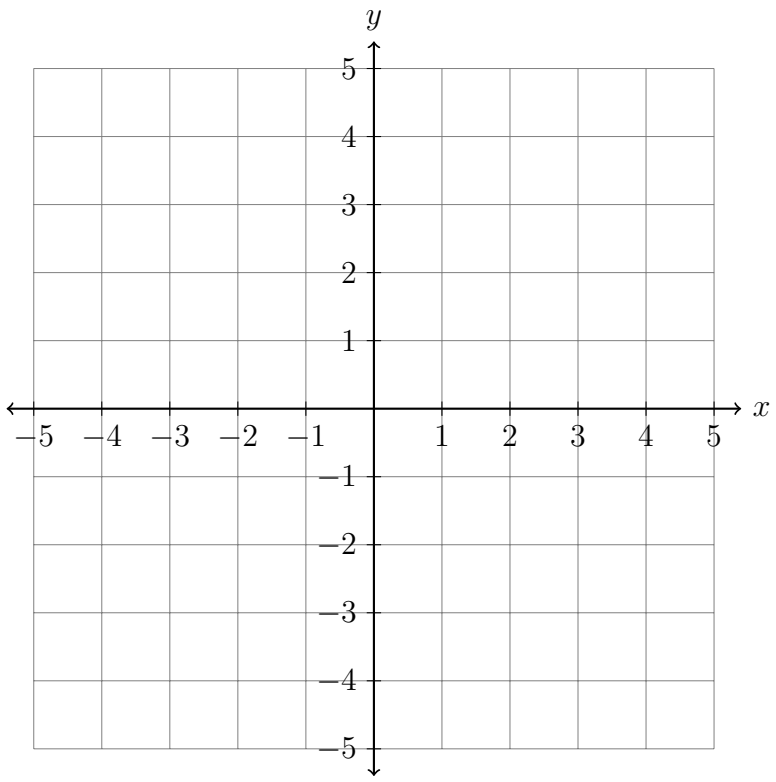
Name:

BECA / Dr. Huson / Geometry 5 Congruence Transformations

5.5 Classwork: Mixed congruence transformations **CCSS.HSG.CO.A.5**

1. Plot the parallelogram $BECA$ with $B(-2,-1)$, $E(3,-1)$, $C(2,-4)$, and $A(-3,-4)$. Translate the quadrilateral up 5 and right 2, labeling it $B'E'C'A'$. (use a straight edge for full credit)

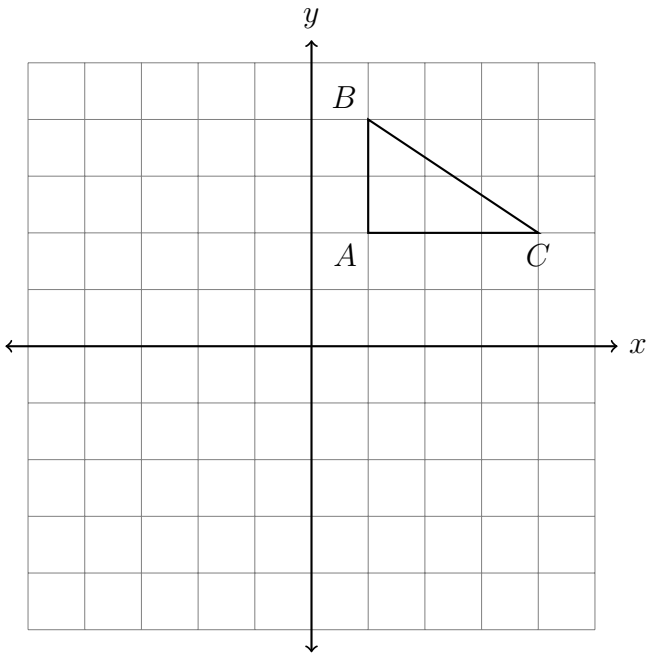


2. Reflect the triangle over the x-axis, $\triangle ABC \to \triangle A'B'C'$. Complete the table of the coordinates and plot and label the image on the grid.

$A(1,2) \to$

$B(1,4) \to$

$C(4,2) \to$

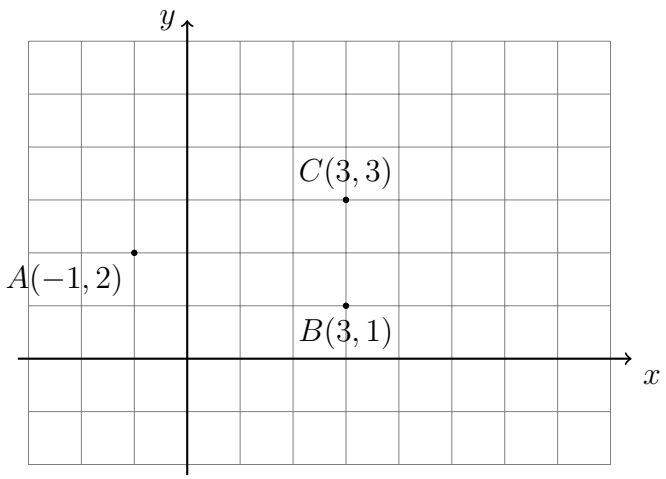


3. A translation is performed mapping $(x, y) \to (x + 4, y - 1)$.

   (a) What is the horizontal shift, how many squares right or left?

   (b) What is the vertical shift, how many squares up or down?

   (c) Identify the image of point A. $A(-1, 2) \to$

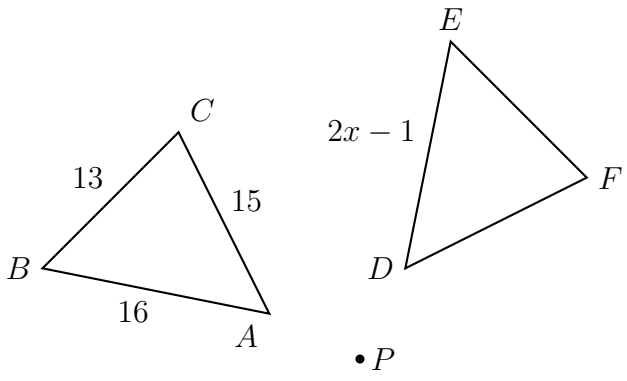


4. In the diagram below, $\triangle ABC$ with sides of 13, 15, and 16, is mapped onto $\triangle DEF$ after a clockwise rotation of 90° about point P.

   (a) What is A mapped to? $A \to$

   (b) What corresponds to F?

   (c) Given $DE = 2x - 1$. Find x.



5. A translation maps $D(2, 4) \to D'(-3, 4)$. What is the image of $E(5, -5)$ under the same translation?

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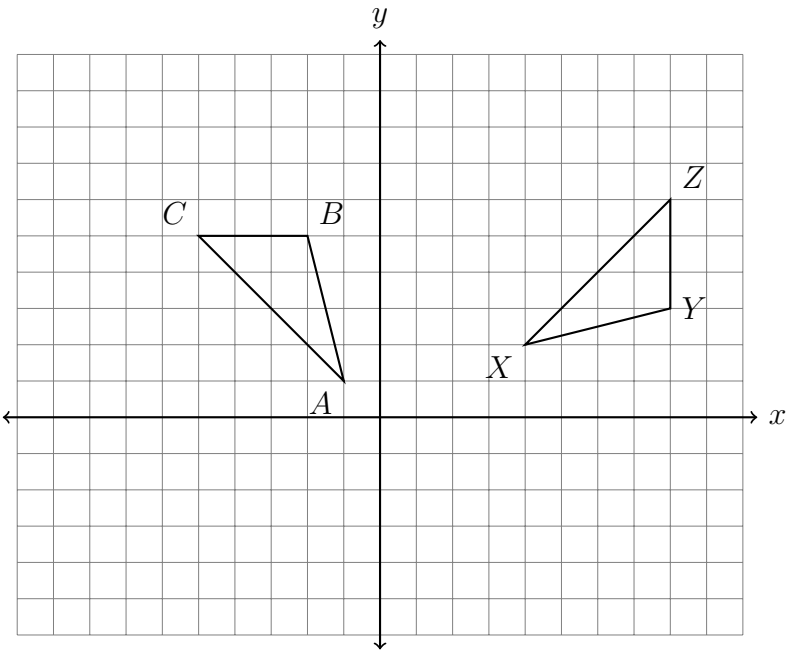
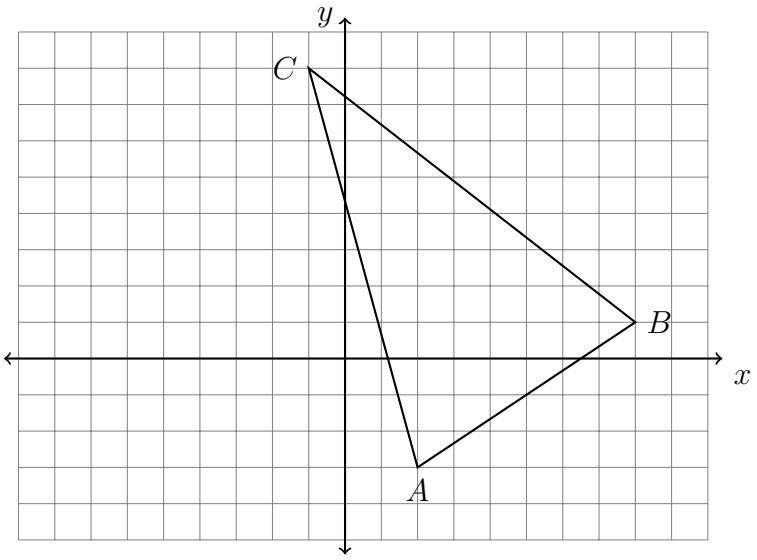
6. The triangle ABC, shown below, undergoes two rigid motions carrying it onto triangle XYZ. State the two isometric transformations. (be specific)



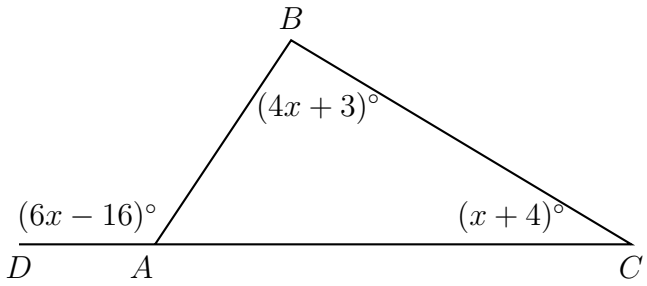
7. Triangle $\triangle ABC$ is graphed on the set of axes below. The vertices of $\triangle ABC$ have the coordinates $A(2, -3)$, $B(8, 1)$, and $C(-1, 8)$.

   Reflect the triangle across the y-axis. Write down its coordinates in a table and plot and label it on the graph.

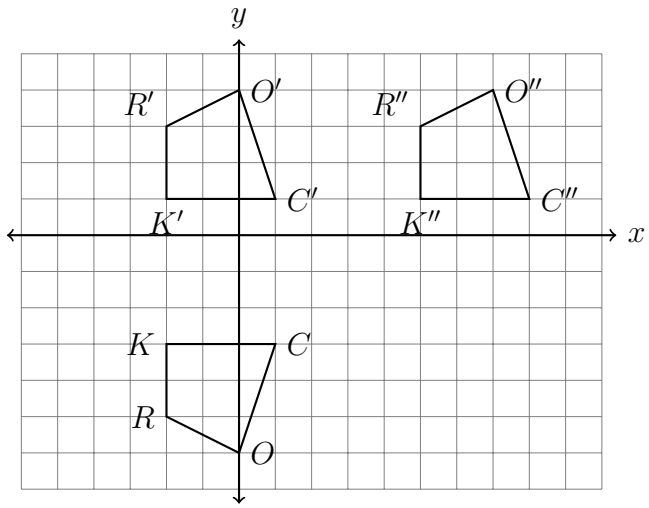


8. In $\triangle ABC$ shown below, side $\overline{AC}$ is extended to point D with $m\angle DAB = (6x - 16)^\circ$, $m\angle C = (x + 4)^\circ$, and $m\angle B = (4x + 3)^\circ$.

   Find $m\angle BAC$.



9. The quadrilateral $ROCK$ undergoes rigid motions, shown below. Describe the sequence of transformations applied.



10. The quadrilateral $MATH$ is mapped to $M'A'T'H'$ by a rigid motion. What transformation a been applied?

    (a) Dilation

    (b) Reflection

    (c) Rotation

    (d) Translation