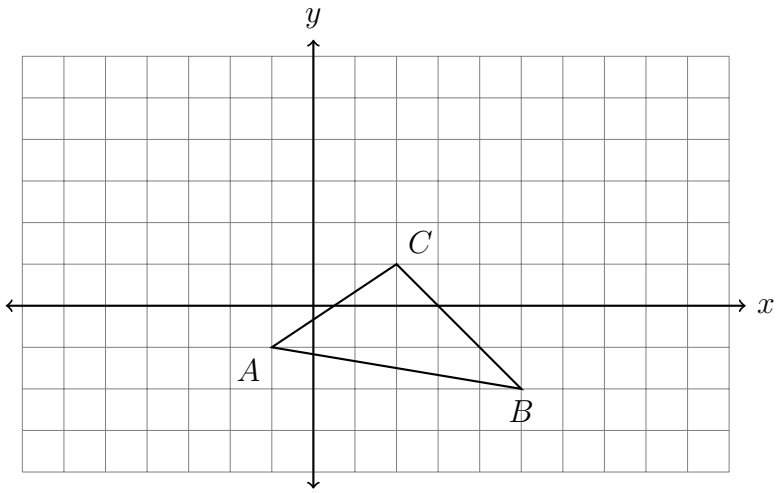
Name:

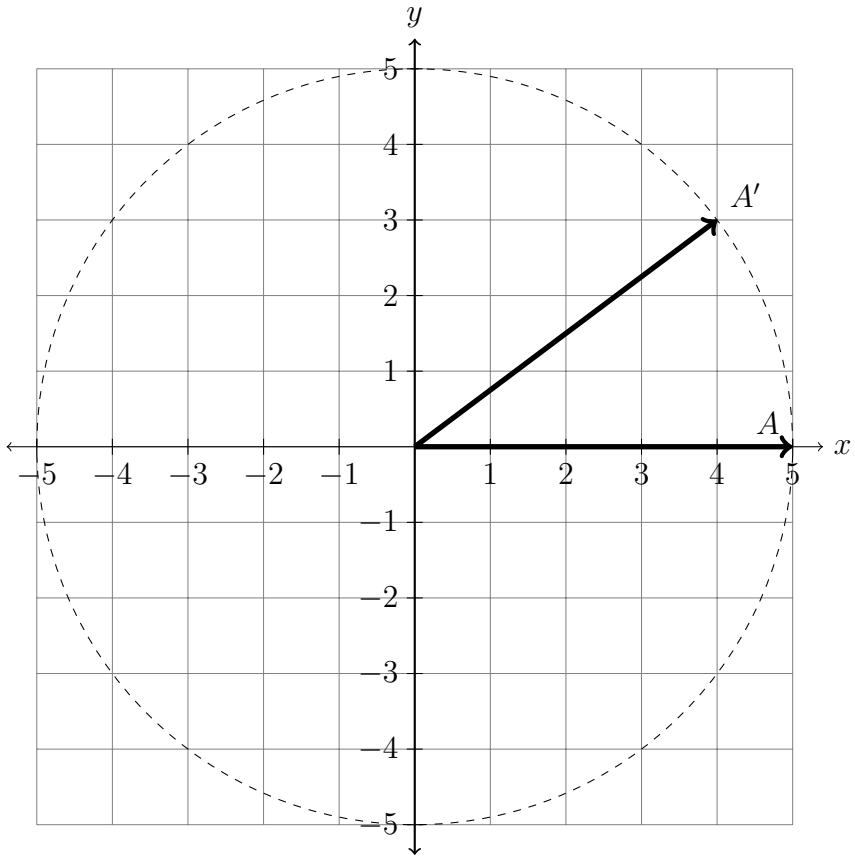
BECA / Dr. Huson / Geometry 5 Congruence Transformations

5.6 Classwork: Mixed congruence transformations **CCSS.HSN.RN.A.2**

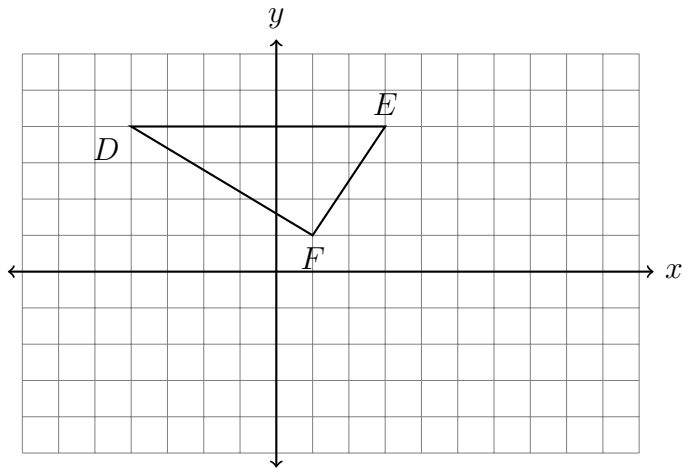
1. Do Now: Slide $\triangle ABC$ to the right three and up four. Label the image $\triangle A'B'C'$.



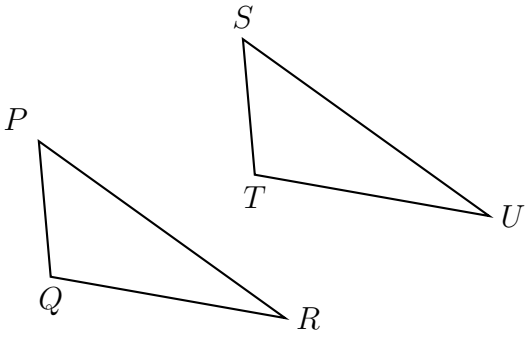
2. A vector from the origin $\overrightarrow{OA}$ is shown rotated counterclockwise around O.
   (a) Using a protractor, measure the angle of rotation
   (b) Mark and label the point $B(3, -4)$. Draw $\overrightarrow{OB}$.
   (c) Find the measure of the combined angle, $m\angle A'OB$.



3. Translate $\triangle DEF$ by $(x, y) \to (x + 3, y - 5)$. Label the image $\triangle D'E'F'$.



4. A translation maps triangle PQR onto triangle STU.



Write each corresponding object.

(a) $Q \to$ _____

(b) $\angle QRP \cong$ _____

(c) _____ $\cong \overline{ST}$

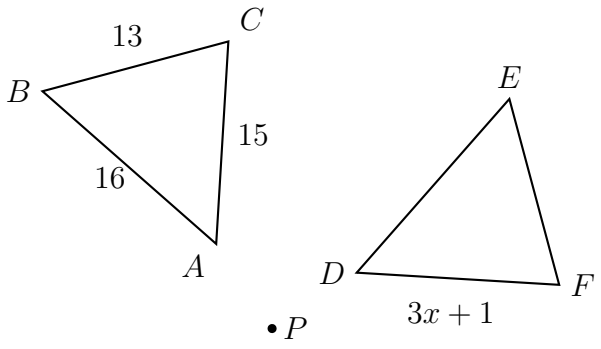
(d) Justify $\triangle PQR \cong \triangle STU$. Use the words "rigid motion".

5. 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 $DF = 3x + 1$. Find x.



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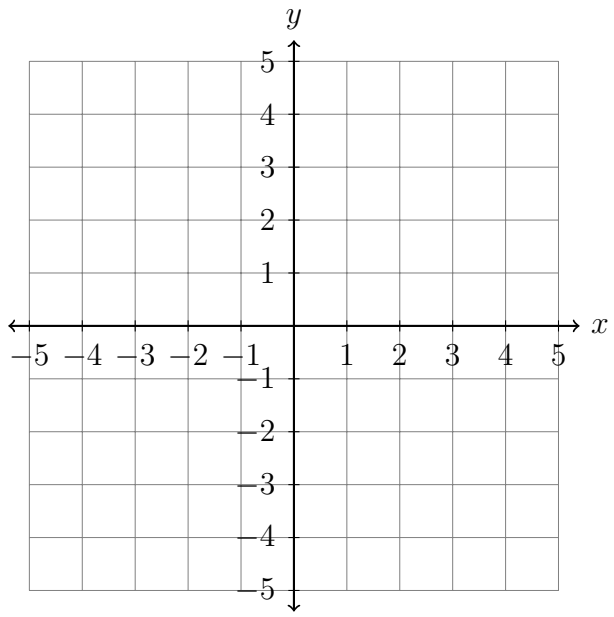
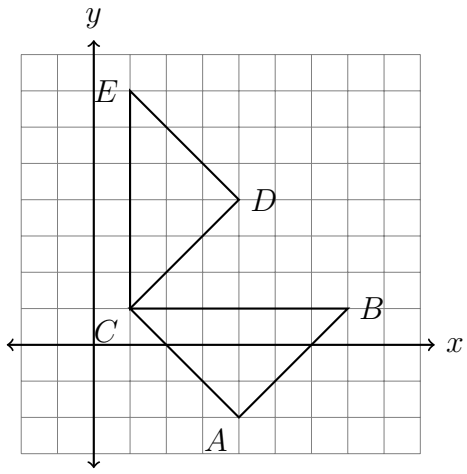
6. On the axes below, graph the point $P(2, 4)$ and its image, P', after a rotation of 90° counterclockwise around the origin. Label both points as a coordinate pair.



7. A transformation maps $\triangle ABC \to \triangle DEC$, shown below.

   (a) Fully specify the transformation.

   (b) Identify each corresponding object.



   i. $A \to$ _____

   ii. $B \to$ _____

   iii. $C \to$ _____

   iv. $\angle ACB \cong$ _____

   v. _____ $\cong \overline{DE}$

8. Check those transformations that are rigid motions.

   ☐ Dilation
   ☐ Translation
   ☐ Reflection
   ☐ Rotation
   ☐ An isometry
   ☐ Horizontal stretch

9. Reflect $\triangle TRS$ across the y-axis, labeling the image $\triangle T'R'S'$. Check those properties that are maintained by reflection.

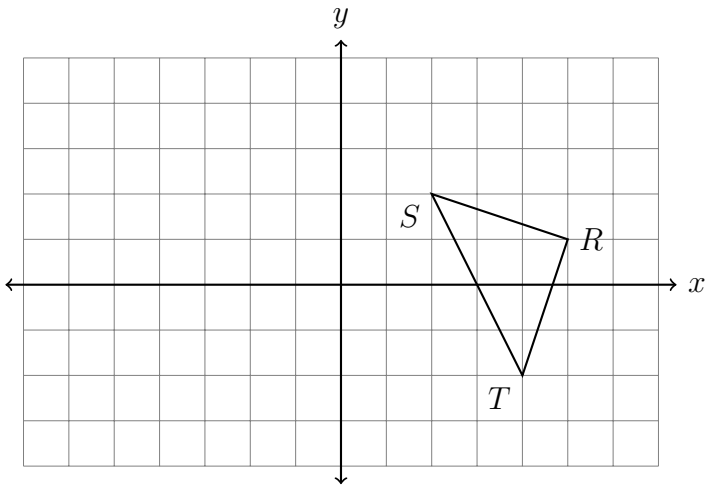
   ☐ Length

   ☐ Angle measures

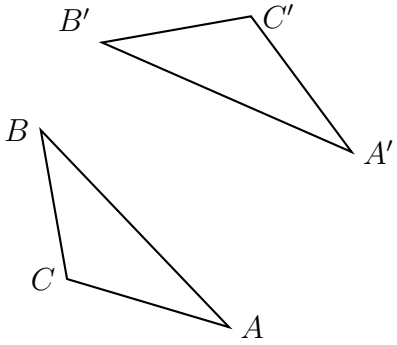
   ☐ Orientation

   ☐ Parallel relationships

   ☐ Area



10. Draw the line of reflection that would map $\triangle ABC$ onto $\triangle A'B'C'$.



11. An isometry maps $\triangle JKL \rightarrow \triangle MNO$. $m\angle K = 40°$ and $m\angle M = 100°$.

    Find the measure of $\angle L$.