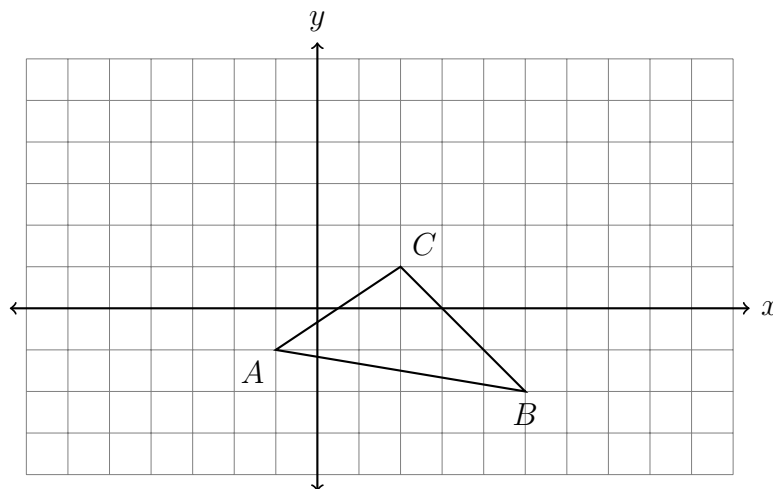


Name:

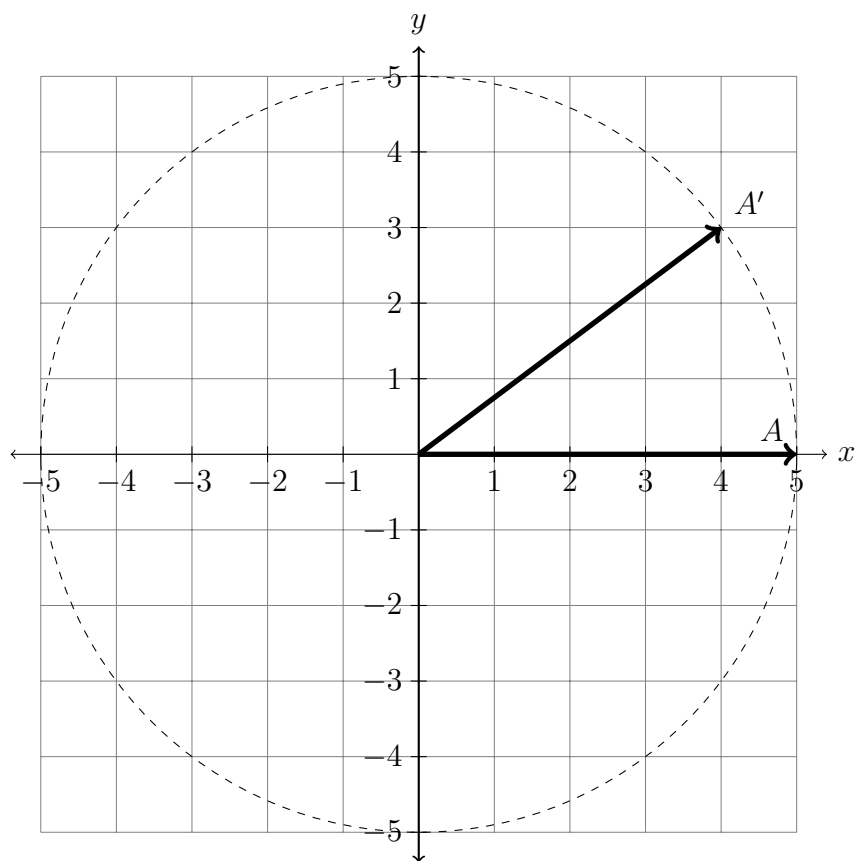
**8.6 Homework: Mixed congruence transformations**

**CCSS.HSG.CO.A.5**

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

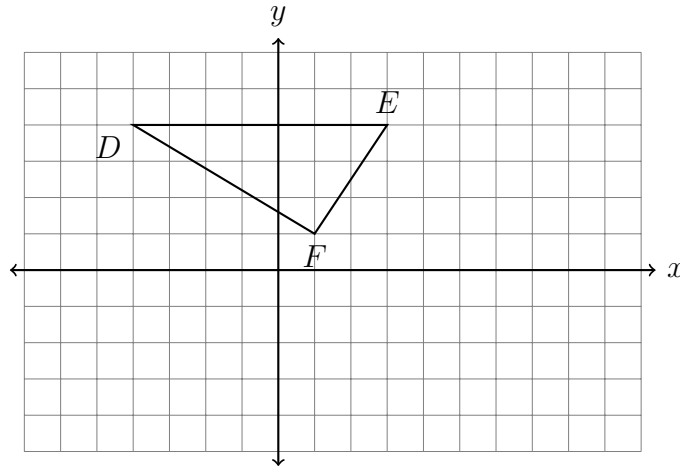


2. A vector from the origin  $\overrightarrow{OA}$  is shown rotated counterclockwise around  $O$ .
- (a) Using a protractor, measure the angle of rotation
  - (b) Mark and label the point  $B(3, -4)$ . Draw  $\overrightarrow{OB}$ .
  - (c) Find the measure of the combined angle,  $m\angle A'OB$ .

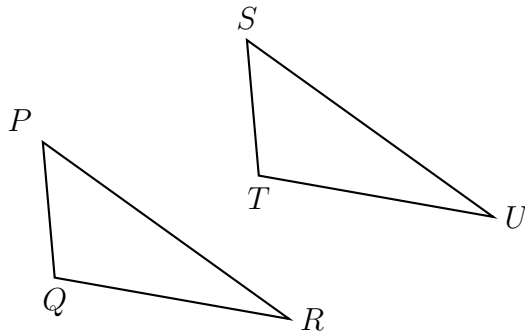


Name: \_\_\_\_\_

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



4. A translation maps triangle  $PQR$  onto triangle  $STU$ .



Write each corresponding object.

(a)  $Q \rightarrow$  \_\_\_\_\_

(b)  $\angle QRP \cong$  \_\_\_\_\_

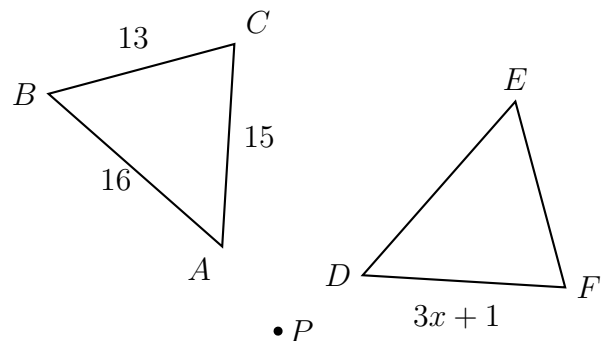
(c) \_\_\_\_\_  $\cong \overline{ST}$

- (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  $90^\circ$  about point  $P$ .

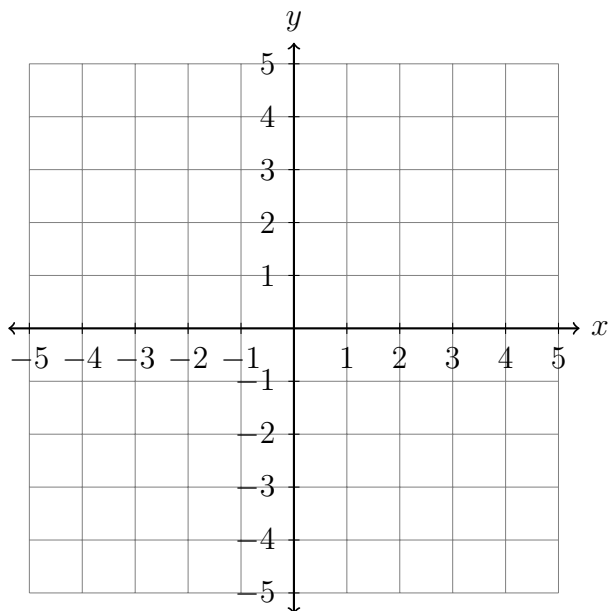
- (a) What is  $A$  mapped to?  $A \rightarrow$  \_\_\_\_\_

- (b) What corresponds to  $F$ ?



- (c) Given  $DF = 3x + 1$ . Find  $x$ .

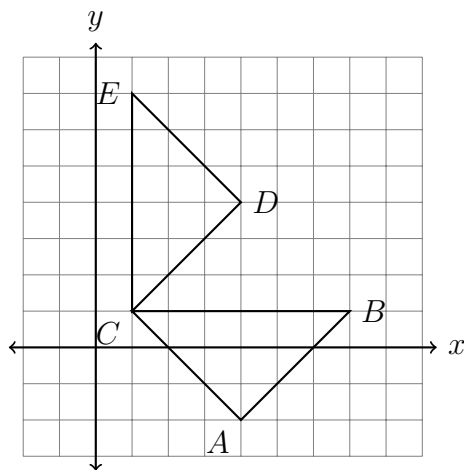
6. On the axes below, graph the point  $P(2, 4)$  and its image,  $P'$ , after a rotation of  $90^\circ$  counterclockwise around the origin. Label both points as a coordinate pair.



7. A transformation maps  $\triangle ABC \rightarrow \triangle DEC$ , shown below.
- (a) Fully specify the transformation.

(b) Identify each corresponding object.

- i.  $A \rightarrow$  \_\_\_\_\_
- ii.  $B \rightarrow$  \_\_\_\_\_
- iii.  $C \rightarrow$  \_\_\_\_\_
- iv.  $\angle ACB \cong$  \_\_\_\_\_
- v. \_\_\_\_\_  $\cong \overline{DE}$



8. Check those transformations that are rigid motions.

- |                                      |   |
|--------------------------------------|---|
| <input type="checkbox"/> Dilation    | <input type="checkbox"/> Rotation           |
| <input type="checkbox"/> Translation | <input type="checkbox"/> An isometry        |
| <input type="checkbox"/> Reflection  | <input type="checkbox"/> Horizontal stretch |

Name:

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

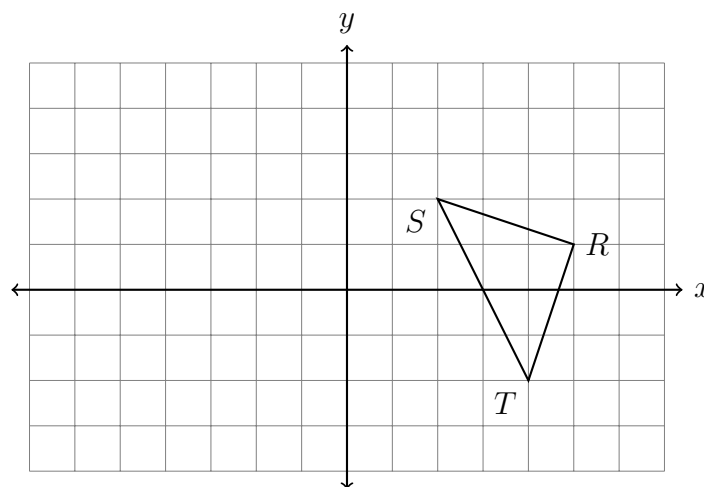
☐ Length

☐ Angle measures

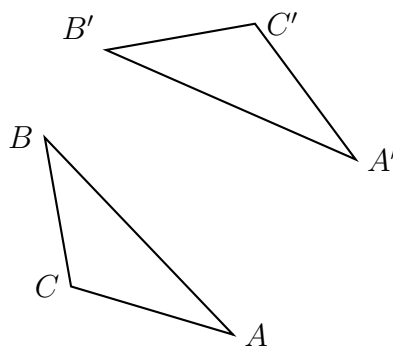
☐ Orientation

☐ Parallel relationships

☐ Area



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



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

Find the measure of  $\angle L$ .

