MIXED REVIEW of Problem Solving

STATE TEST PRACTICE
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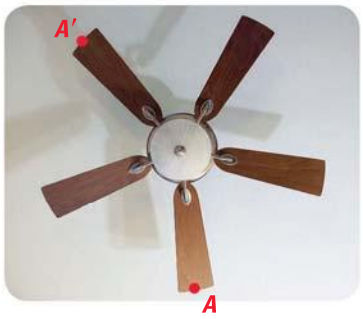
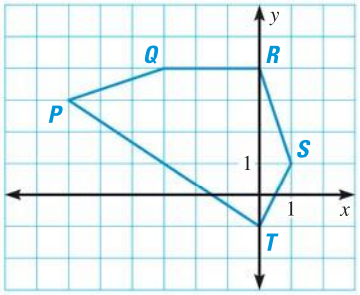
Lessons 9.4–9.7

1. **GRIDDED ANSWER** What is the angle of rotation, in degrees, that maps A to A' in the photo of the ceiling fan below?



2. **SHORT RESPONSE** The vertices of $\triangle DEF$ are $D(-3, 2)$, $E(2, 3)$, and $F(3, -1)$. Graph $\triangle DEF$. Rotate $\triangle DEF$ 90° about the origin. Compare the slopes of corresponding sides of the preimage and image. What do you notice?

3. **MULTI-STEP PROBLEM** Use pentagon $PQRST$ shown below.

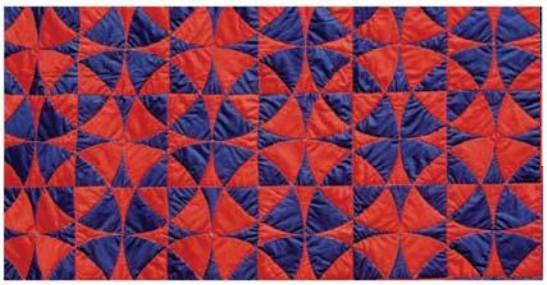


   a. Write the polygon matrix for $PQRST$.

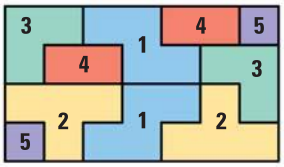
   b. Find the image matrix for a 270° rotation about the origin.

   c. Graph the image.

4. **SHORT RESPONSE** *Describe* the transformations that can be found in the quilt pattern below.



5. **MULTI-STEP PROBLEM** The diagram shows the pieces of a puzzle.



   a. Which pieces are translated?

   b. Which pieces are reflected?

   c. Which pieces are glide reflected?

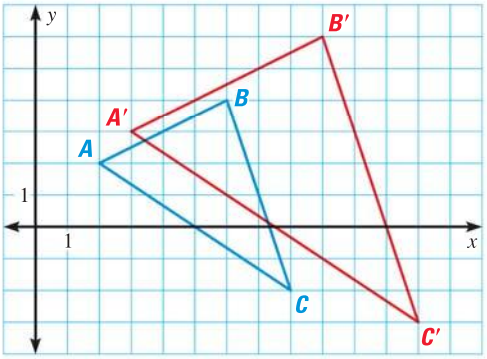
6. **OPEN-ENDED** Draw a figure that has the given type(s) of symmetry.

   a. Line symmetry only

   b. Rotational symmetry only

   c. Both line symmetry and rotational symmetry

7. **EXTENDED RESPONSE** In the graph below, $\triangle A'B'C'$ is a dilation of $\triangle ABC$.



   a. Is the dilation a *reduction* or an *enlargement*?

   b. What is the scale factor? *Explain* your steps.

   c. What is the polygon matrix? What is the image matrix?

   d. When you perform a composition of a dilation and a translation on a figure, does order matter? *Justify* your answer using the translation $(x, y) \rightarrow (x + 3, y - 1)$ and the dilation of $\triangle ABC$.