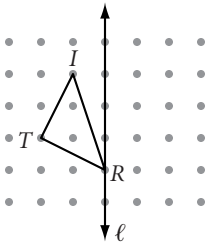
Lesson 7.1 • Transformations and Symmetry

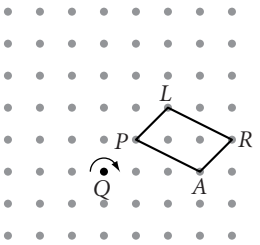
Name _____ **Period** _____ **Date** _____

In Exercises 1–3, perform each transformation.

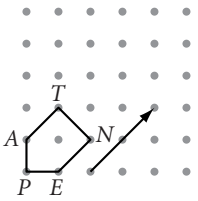
1. Reflect $\triangle TRI$ across line ℓ.



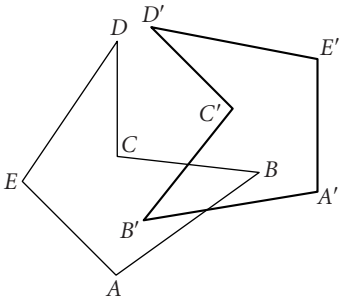
2. Rotate *PARL* 270° clockwise about *Q*.



3. Translate *PENTA* by the given vector.

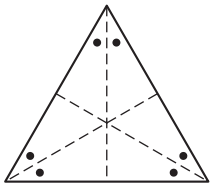


4. *ABCDE* and its reflected image, *A′B′C′D′E′*, are shown below. Use construction tools to locate the line of reflection, ℓ. Explain your method.

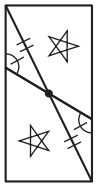


In Exercises 5–8, identify the type(s) of symmetry in each figure.

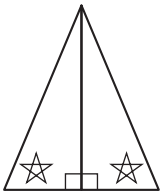
5. Equilateral triangle



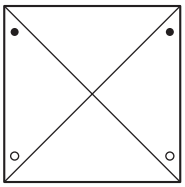
6. Rectangle



7. Isosceles triangle



8. Square



In Exercises 9–12, draw each polygon and identify the type(s) of symmetry in each. Draw all lines of reflection and mark centers of rotation.

9. Rhombus

10. Parallelogram

11. Isosceles trapezoid

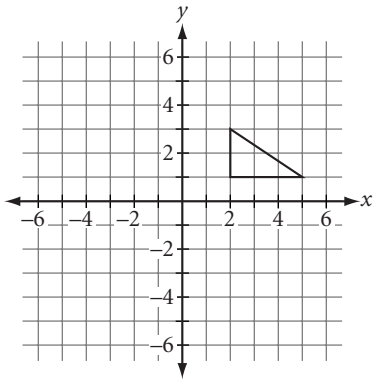
12. Square

Lesson 7.2 • Properties of Isometries

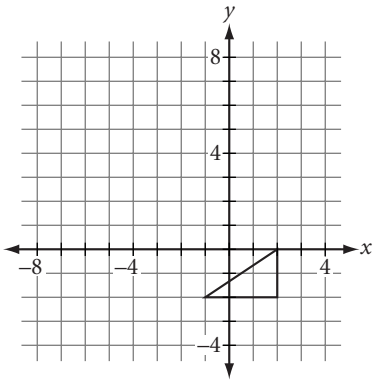
Name _____ **Period** _____ **Date** _____

In Exercises 1–3, draw the image according to the rule and identify the type of transformation.

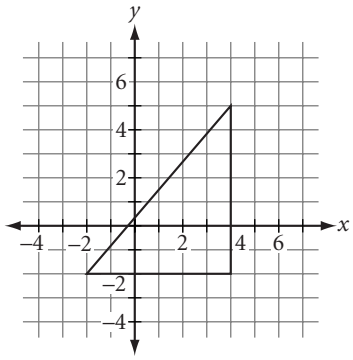
1. $(x, y) \rightarrow (-x, -y)$



2. $(x, y) \rightarrow (x - 4, y + 6)$

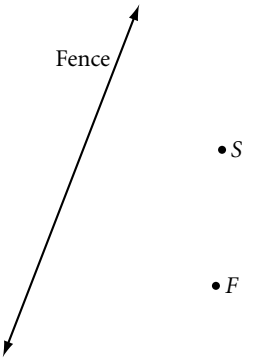


3. $(x, y) \rightarrow (4 - x, y)$

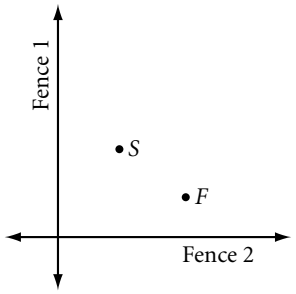


In Exercises 4 and 5, the Harbour High Geometry Class is holding a Fence Race. Contestants must touch each fence at some point as they run from *S* to *F*. Use your geometry tools to draw the shortest possible race path.

4.

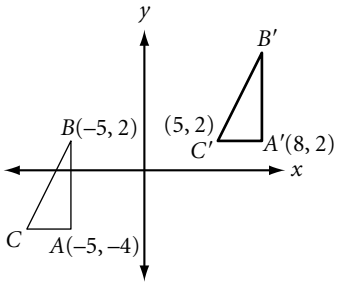


5.

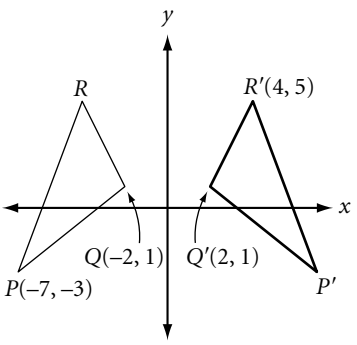


In Exercises 6–8, complete the ordered pair rule that transforms each triangle to its image. Identify the transformation. Find all missing coordinates.

6. $(x, y) \rightarrow$ (_____, _____)



7. $(x, y) \rightarrow$ (_____, _____)



8. $(x, y) \rightarrow$ (_____, _____)