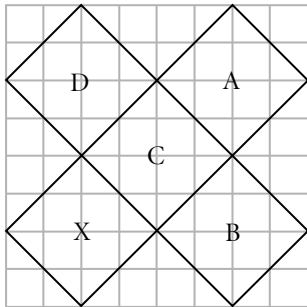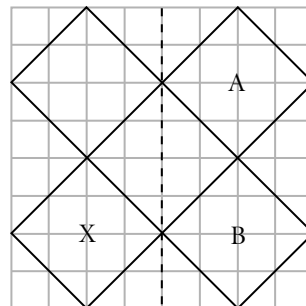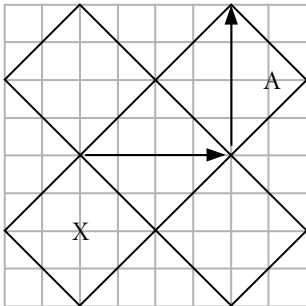## Quick Review

➤ The 3 different transformations—translation, reflection, and rotation—have been used to create a design.

Here are some transformations that can be identified in this design.

Square A is the image of Square X after a translation 4 units right and 4 units up.

Square B is the image of Square X after a reflection in the broken line.

Square C is the image of Square X after a rotation of 90° clockwise about point P.

Square C is also the image of Square X after a rotation of 90° counterclockwise about point Q.

Square D is the image of Square X after a rotation of 180° about point Q.

You can make a tracing of square X and rotate it about points P and Q to check these results.
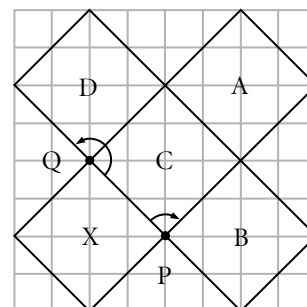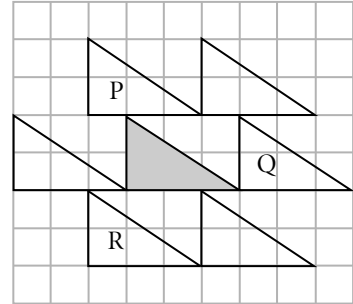
➤ A rotation of 180° clockwise about a point gives the same image as a rotation of 180° counterclockwise about the same point.

➤ Under any transformation, the original shape and its image are always congruent.

Practice

1. Match each translation of the shaded triangle to its image.

a) 3 units right _____

b) 1 unit left and 2 units down _____
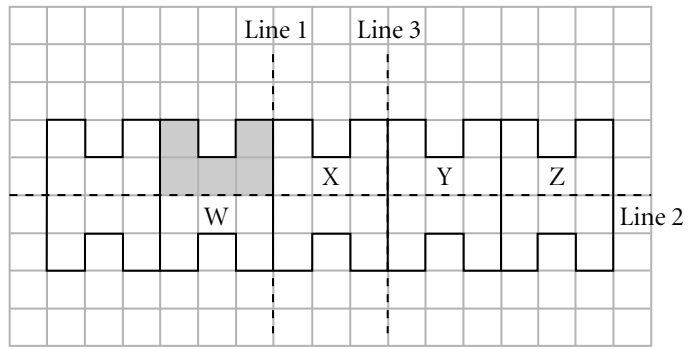
c) 1 unit left and 2 units up _____

2. Match each reflection of the shaded octagon to its image.

a) reflection in Line 1

_____

b) reflection in Line 2
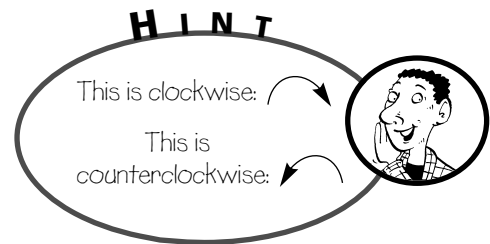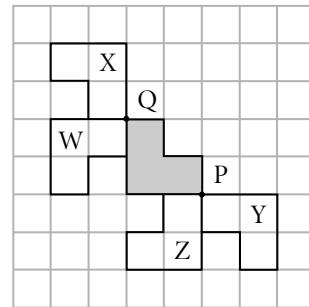
_____

c) reflection in Line 3

_____

3. Match each rotation of the shaded hexagon to its image.

a) 90° counterclockwise about point P

_____

b) 180° about point P

_____

c) 90° clockwise about point Q

_____

d) 180° about point Q

_____

HINT

This is clockwise:

This is counterclockwise:

4. Match each transformation of the shaded polygon with its image.

a) a rotation of 180° about point P _____

b) a translation 3 units up _____

c) a reflection in Line x _____

d) a reflection in Line y _____

e) a rotation of 90° counterclockwise about point P

_____

f) a translation 2 units right and 2 units up

_____
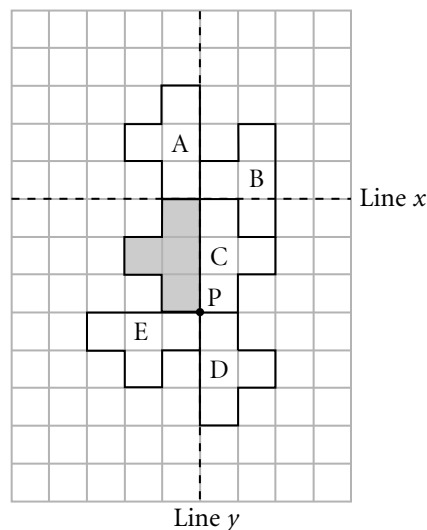
5. Identify each transformation of the shaded Shape X.
Describe each transformation in as many ways as you can.
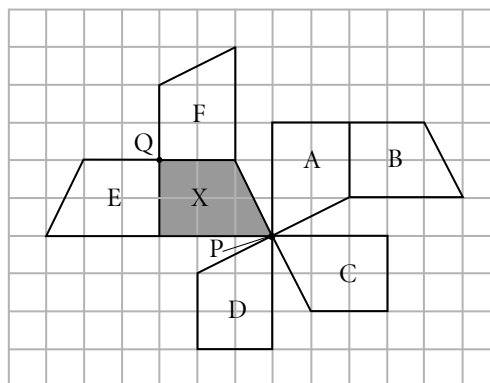
a) Shape A is an image of Shape X.

_____

_____

b) Shape B is an image of Shape X.

_____

c) Shape C is an image of Shape X.

_____

d) Shape D is an image of Shape X.

_____

e) Shape E is an image of Shape X.

_____

f) Shape F is an image of Shape X.

_____

_____

Tip

Make a tracing of Shape X. Translate, reflect, or rotate the shape to check your results.