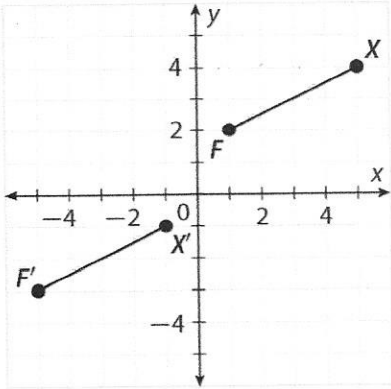


Unit 1 Review

1. What type of transformation is defined by the rule $(x, y) \rightarrow (x - 2, y + 3)$?

- A Reflection
- B Translation
- C Rotation



2. In the figure above, find the component form of the vector that maps \overline{XF} to $\overline{X'F'}$.

- A $\langle 6, 5 \rangle$
- B $\langle -6, -5 \rangle$
- C $\langle -5, -6 \rangle$

3. If $\triangle ABC \cong \triangle DEF$ then $\overline{EF} \cong$

- A \overline{AB}
- B \overline{BC}
- C \overline{AC}

4. If $(x, y) \rightarrow (-y, x)$, where does $A(8, -3)$ get mapped to?

- A $A'(-3, 8)$
- B $A'(3, 8)$
- C $A'(-8, 3)$

5. What is the name for a transformation that shifts the figure along a vector?

- A Translation
- B Reflection
- C Rotation

6. What is the coordinate notation for rotating a figure 180° about the origin?

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

7. Use $\triangle ABC$ to do the following:

a. Find the coordinates of point A , B , and C .

$$A(-3, 2)$$

$$B(-2, 4)$$

$$C(-1, 3)$$

b. Find the coordinates of image points A' , B' , and C' if $\triangle ABC$ is translated along the vector $\langle 4, -2 \rangle$.

$$A'(1, 0)$$

$$B'(2, 2)$$

$$C'(3, 1)$$

c. Graph $\triangle A'B'C'$.

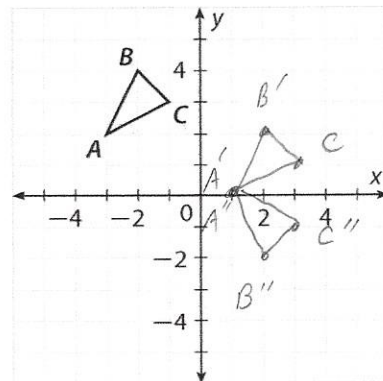
d. Find the coordinates of image points A'' , B'' , and C'' if $\triangle A'B'C'$ is reflected over the x -axis.

$$A''(1, 0)$$

$$B''(2, -2)$$

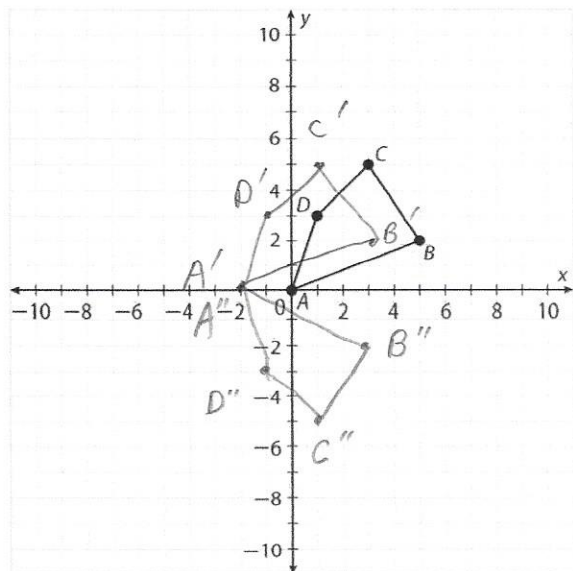
$$C''(3, -1)$$

e. Graph $\triangle A''B''C''$.



For the figure below, draw the images after each part of the given sequence of transformations.

8. $(x, y) \rightarrow (x - 2, y) \rightarrow (x, -y)$

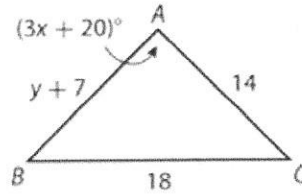


$$(x, y) \rightarrow (x - 2, y) \rightarrow (x, -y)$$

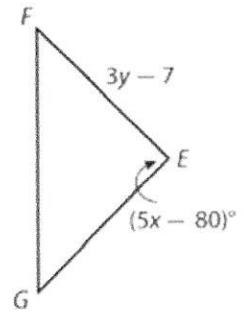
$A(0, 0)$	$A'(-2, 0)$	$A''(-2, 0)$
$B(5, 2)$	$B'(3, 2)$	$B''(3, -2)$
$C(3, 5)$	$C'(1, 5)$	$C''(1, -5)$
$D(1, 3)$	$D'(-1, 3)$	$D''(-1, -3)$

9. If $\triangle ABC \cong \triangle EFG$, solve the following:

- What is the length of \overline{EG} ? 14
- What is the value of x ? 50
- What is the $m\angle A$? $3(50) + 20 = 170$
- What is the value of y ? 7
- What is the length of \overline{AB} ? $7 + 7 = 14$



$$\begin{aligned} m\angle A &= m\angle E \\ 3x + 20 &= 5x - 80 \\ 100 &= 2x \\ x &= 50 \end{aligned}$$

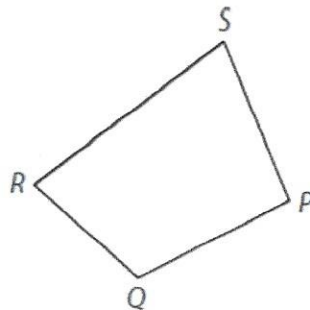
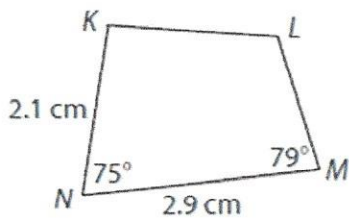


$$\begin{aligned} AB &= EF \\ y + 7 &= 3y - 7 \\ 14 &= 2y \\ y &= 7 \end{aligned}$$

10. Find the image of point $A(-4,3)$ under each transformation:

- | | |
|---|--------------|
| a. Translated along vector $\langle -2,4 \rangle$ | $A'(-6, 7)$ |
| b. Reflected across x -axis | $A'(-4, -3)$ |
| c. Rotated 90° counterclockwise | $A'(-3, -4)$ |
| d. Reflected across line $y = x$ | $A'(3, -4)$ |
| e. Rotated 180° | $A'(4, -3)$ |
| f. Reflected across y -axis | $A'(4, 3)$ |
| g. Rotated 270° | $A'(3, 4)$ |
| h. Translated along vector $\langle -1,5 \rangle$ | $A'(-5, 8)$ |
| i. Reflected across line $y = -x$ | $A'(-3, 4)$ |

11. In the diagram below, $KLMN \cong PQRS$.



- Find the length of \overline{RS} . $= MN = 2.9$
- Find $m\angle R$. $= m\angle M = 79$

12. For each of the transformations below, describe (in words) how a point would be affected by the transformation whose coordinate notation is given. For translations, include the direction and distance that the point would move. For rotations and reflections, specify which rotation or reflection.

a. $(x, y) \rightarrow (x, y - 5)$

shift 5 units down

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

reflect over y -axis

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

rotate 90° CCW

d. $(x, y) \rightarrow (x + 3, y)$

shift right 3 units