UNIT 7: TRANSFORMATIONS

Homework HELP!

Review Reflectional and Translational Symmetry

Draw all of the **lines of symmetry** for each figure. State the number of lines of symmetry. If the figure does not have reflectional symmetry, write "none."
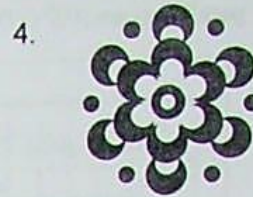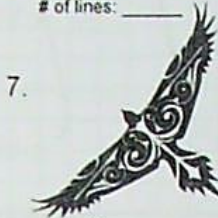
1.

\# of lines: _____

2.

\# of lines: _____

3.

\# of lines: _____

4.

\# of lines: _____

5.

\# of lines: _____

6.

\# of lines: _____

7.

\# of lines: _____

8.

\# of lines: _____

The vertices of a polygon are listed. Graph and label each polygon and its image after a reflection over the given line. Name the coordinates of the image. State the rule for the transformation. (It is okay for the images to overlap each other.)
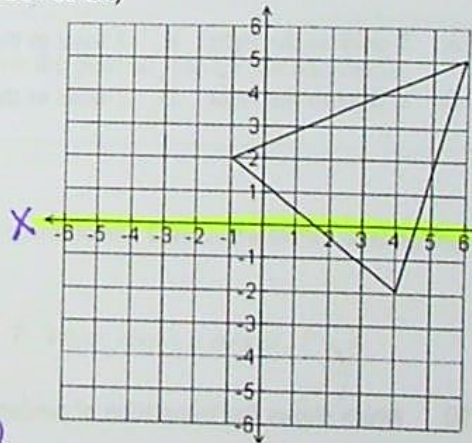
9. Reflect over the **x-axis**.
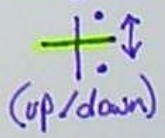
A (-1, 2) → A' _____

B (4, -2) → B' _____

C (6, 5) → C' _____

General rule: _____

Reflect over x-axis, opposite of y

(up/down)

10. Reflect over the **y-axis**.
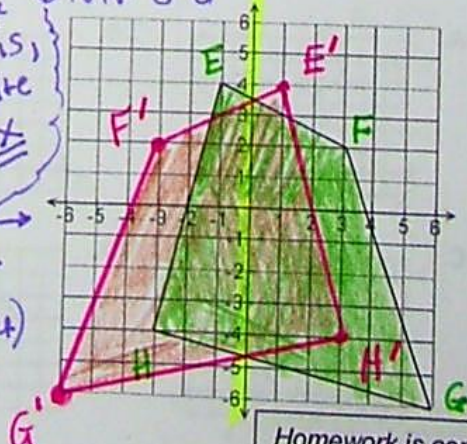
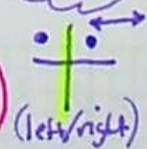- E (-1, 4) → E' (1, 4)

- F (3, 2) → F' (-3, 2)

- G (6, -6) → G' (-6, -6)

- H (-3, -4) → H' (3, -4)

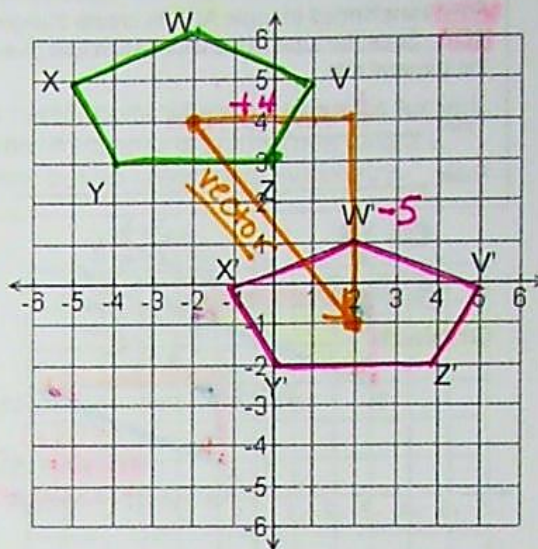General rule: $(x, y) \rightarrow (-x, y)$ (left/right)

reflect over the y-axis, opposite of x

Homework is continued on the next page.

11. Name the coordinates of the image and its translation. State the rule for the transformation.

V $(1,5)$ → V' $(5,0)$

W $(-2,6)$ → W' $(2,1)$

X $(-5,5)$ → X' $(-1,0)$
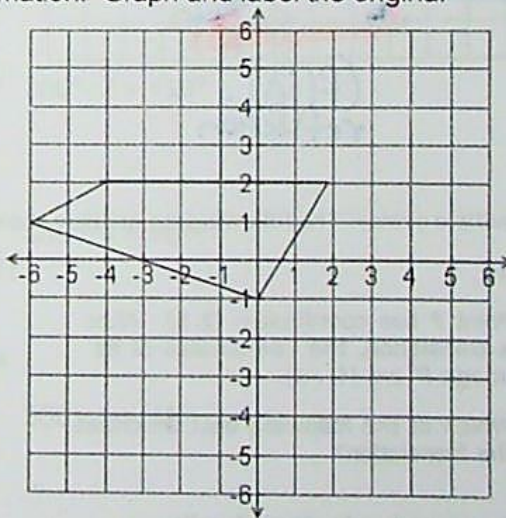
Y $(-4,3)$ → Y' $(0,-2)$

Z $(0,3)$ → Z' $(4,-2)$

General rule: $(x,y) \rightarrow (x+4, y-5)$

12. The vertices of a polygon are listed. Name the coordinates of the image's translation given the general rule for the transformation. Graph and label the original polygon and its image.

General rule: $(x,y) \rightarrow (x+3, y-5)$

D $(-4, 2)$ → D' _____

E $(-6, 1)$ → E' _____

F $(0, -1)$ → F' _____

G $(2, 2)$ → G' _____

A point and its image after a translation are given. Write a rule to describe the translation.

13. The translation that takes A(-8, -6) to A'(2, 3) $(x, y) \rightarrow$ _____

14. The translation that takes B(5, -1) to B'(-9, -5) $(x, y) \rightarrow (x-14, y-4)$

$5 + x = -9$
-5
$x = -14$

$-1 + y = -5$
$+1$
$y = -4$
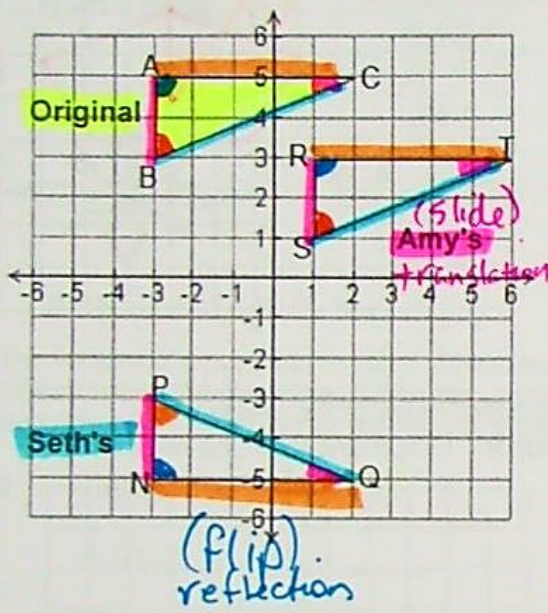
Homework is continued on the next page.

15.

Amy transformed triangle ABC to create triangle RST. State the type of transformation and give the general rule.

Type: ___translation___

Rule: _____

Seth transformed triangle ABC to create triangle NPQ. State the type of transformation and give the general rule.

Type: ___reflection___

Rule: _____

Name the corresponding parts for the triangles.

For Amy's transformation...

$\overline{AB} \cong$ _____ $\angle A \cong$ _____

$\overline{BC} \cong$ _____ $\angle B \cong$ _____

$\overline{CA} \cong$ _____ $\angle C \cong$ _____

$\triangle ABC \cong$ _____

For Seth's transformation...

$\overline{AB} \cong$ _____ $\angle A \cong$ _____

$\overline{BC} \cong$ _____ $\angle B \cong$ _____

$\overline{CA} \cong$ _____ $\angle C \cong$ _____

$\triangle ABC \cong$ _____

(graph showing Original triangle ABC, Amy's triangle RST labeled "(slide) Amy's translation", and Seth's triangle NPQ labeled "(flip) reflection")

Multiple choice: The following are multiple choice questions. Circle the letter next to the answer.

16.

Point P has coordinates (2, 5). After a translation, the coordinates of its image P' are (4, −1).

Which of the following best describes the translation?

A. right 1 unit, down 4 units

B. right 2 units, down 4 units

C. right 2 units, down 6 units

D. right 4 units, down 1 unit

17. Which figure is a reflection of figure P in respect to the x-axis?

A.

B.

C.

D.