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Worksheet 6.R: Transformations Review | Chapter 6

A. Study Guide and Rules

If you are able to answer each of these questions, you will do fine on the test. Use this as a study guide to help you practice the other homework problems.

1. Translations

a. Describe a **translation**. (*Hint: What stays the same? What changes?*)

b. What can we use to show a translation of m units to the left and n units up?

2. Reflections

a. Describe a **reflection**. (*Hint: What changes? What stays the same?*)

b. What is the rule for reflecting over the x -axis?

c. What is the rule for reflecting over the y -axis?

3. Rotations

a. Describe a **rotation**. (*Hint: What changes? What stays the same?*)

b. What is the rule for a 90° clockwise rotation about the origin?

c. What is the rule for a 180° clockwise rotation about the origin?

d. What is the rule for a 270° clockwise rotation about the origin?

e. What can you do to rotate 90° counterclockwise about the origin?

f. What can you do to rotate 270° counterclockwise about the origin?

g. What is the origin?

4. Dilations

a. Describe a **dilation**. (*Hint: What changes? What stays the same?*)

b. What is the scale factor and how do you find it?

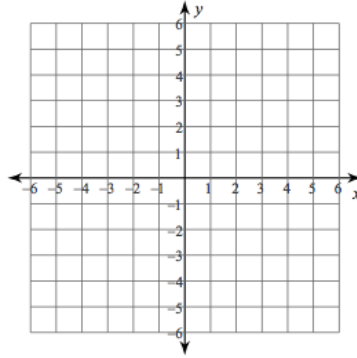
c. What is the rule for dilating a figure on the coordinate plane?

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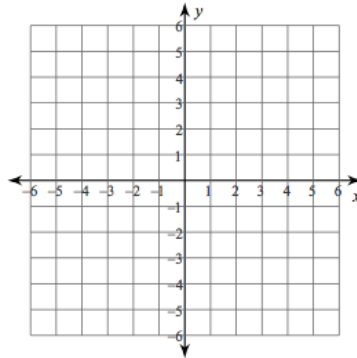
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B. Applications and Practice Problems

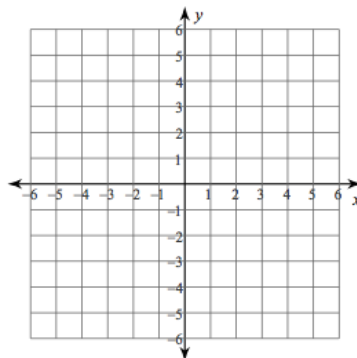
- Parallelogram $MNPQ$ has vertices $M(-2, 0)$, $N(1, 0)$, $P(2, 2)$, and $Q(-1, 2)$. The point M' has coordinates $(1, 4)$.
 - What is the translation notation from M to M' in translation notation?
 - Find the coordinates of N' , P' , and Q' .
- Triangle RST has vertices $R(-3, 2)$, $S(0, -5)$, and $T(4, 5)$. When translated R' has coordinates $(4, 1)$.
 - What is the translation notation from R to R' in translation notation?
 - Find the coordinates of S' and T' .
- Reflect the point $A(6, -5)$ over the y -axis.



- Rotate $K(2, -4)$ 90° counterclockwise about the origin and identify K' .



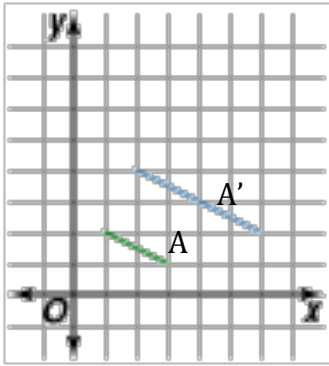
- Find the coordinates of the image of the point $J(3, 9)$ for a dilation with the scale factor of $\frac{2}{3}$.



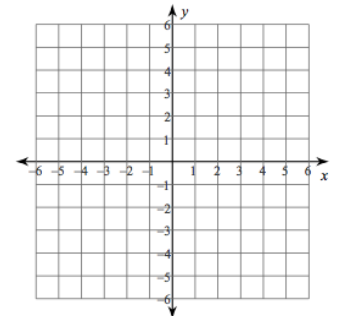
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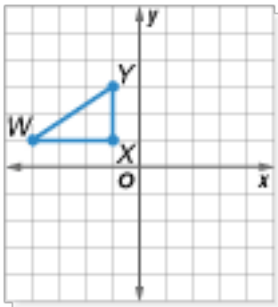
6. On the graph below, line A' is a dilation of line A . Find the scale factor of the dilation and tell whether it is an enlargement or a reduction.



7. The point $P(-5, -10)$ is rotated 90° clockwise about the origin. What are the coordinates of P' ?
8. The point $Q(-4, 2)$ is rotated 180° counterclockwise about the origin. What are the coordinates of Q' ?
9. The point $R(-5, 3)$ was reflected over the y -axis. What are the coordinates of R' ?
10. The triangle with points $R'(6, -3)$, $S'(4, -3)$, and $T'(6, 5)$ was reflected across the y -axis. What are the coordinates of $\triangle RST$?



11. Show the image of $\triangle WXY$ after a reflection over the x -axis.



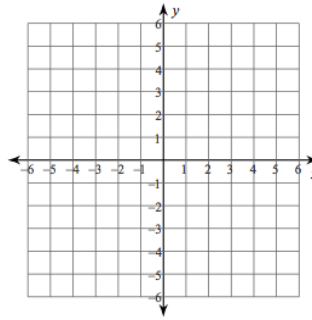
12. In Ms. Adams' class, the projector dilates the picture on her computer screen with a scale factor of $\frac{8}{3}$. If the original picture is 6 inches long, how large will it be on the projected screen?

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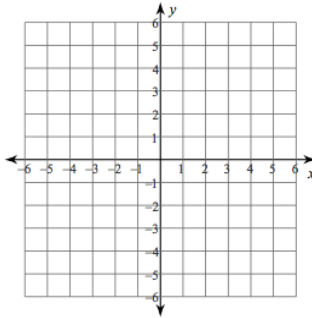
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For questions 13-15, use the ordered pairs $A(3, 3)$, $B(3, -3)$, and $C(-3, 0)$.

13. Plot $\triangle ABC$.

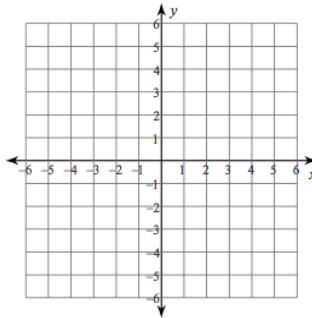


14. Graph and label the image of $\triangle ABC$ after a translation of 3 units to the right and 2 units up.



15. **For this problem, use the original graph of $\triangle ABC$.**

Graph and label the image of $\triangle ABC$ after a reflection over the x -axis.



16. Use the point $W(3, 2)$ to answer the following questions:

- What is W' if it is translated $(x + 2, y + 5)$?
- What is W' if it is reflected over the x -axis?
- What is W' if it is reflected over the y -axis?
- What is W' if it is rotated 90° clockwise about the origin?
- What is W' if it is rotated 180° clockwise about the origin?
- What is W' if it is rotated 270° clockwise about the origin?
- What is W' if it is rotated 90° counterclockwise about the origin?
- What is W' if it is rotated 180° counterclockwise about the origin?
- What is W' if it is rotated 270° counterclockwise about the origin?
- What is W' if it is dilated with $k=4$?
- What is W' if it is dilated with $k=\frac{1}{2}$?

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