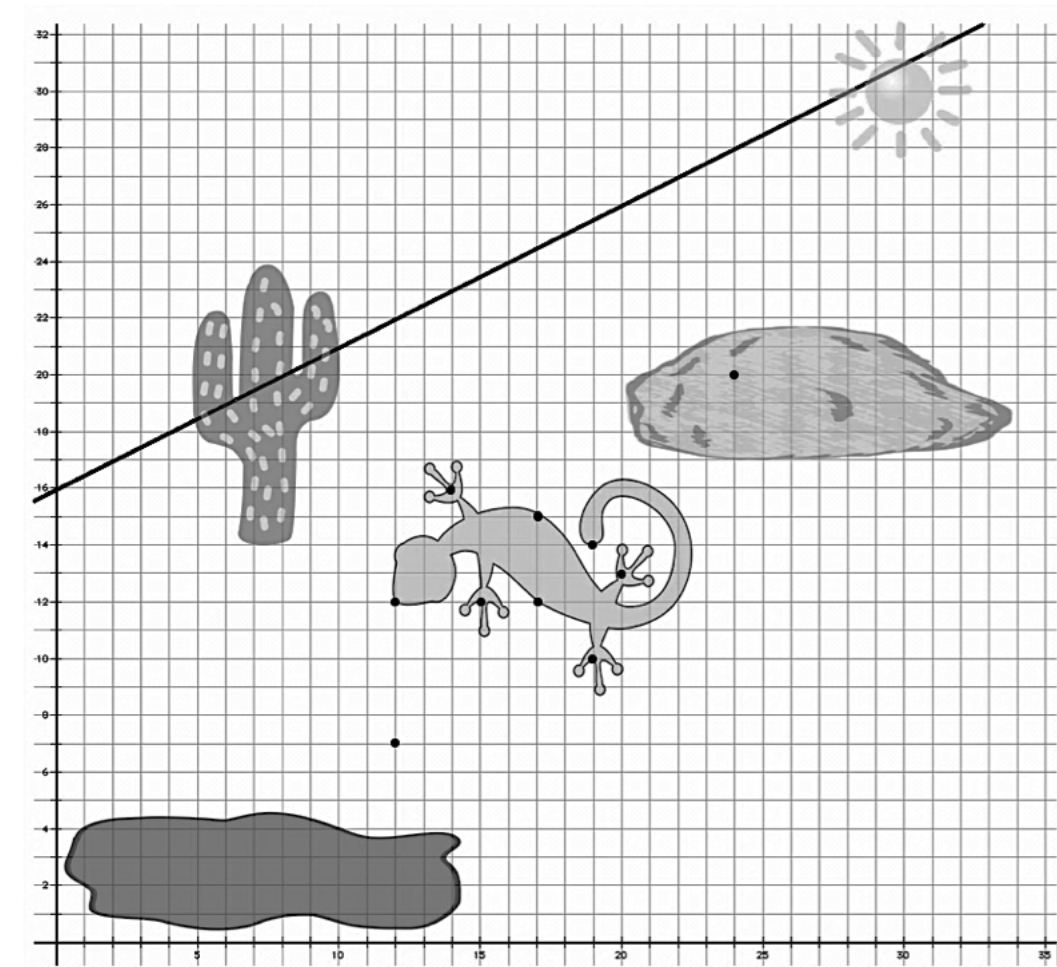


Notes & Assignment 7.2 – Geometric Transformations

Animated films and cartoons are generally produced using computers, this requires both artistic and mathematical knowledge. Animators will often need to move an object around without changing its size or shape, so they use geometric transformations.

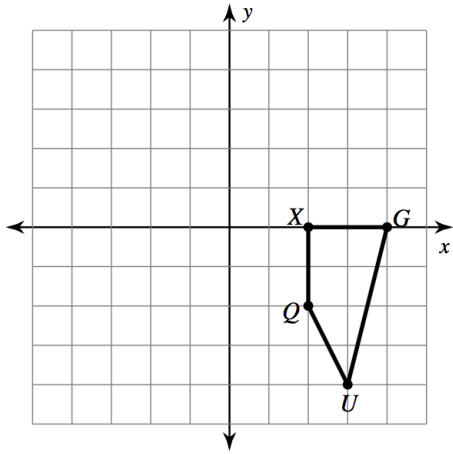
Leroy the Lizard is hanging out in the desert. All transformations are from Leroy's original location.

- Leroy decides he wants to be a lazy lizard, and sun himself on the rock by translating. His nose should be on the point $(24, 20)$.
- Leroy got too hot and decided to be a diving lizard and dive into the puddle. He needs to rotate 90° counterclockwise around the point $(12, 7)$ so he will dive into the puddle.
- Leroy got scared when he saw a hawk's shadow pass by. He needs to reflect over the line $x = 23$ so he can run the other way and get home safely.



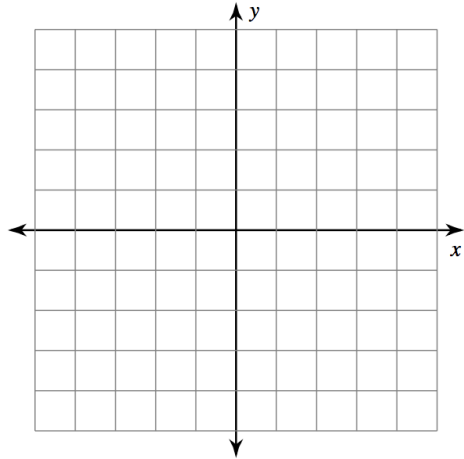
Translations Practice

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

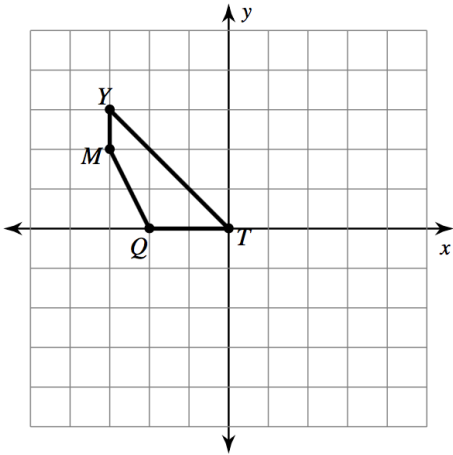


2. Graph the points:
A(-3, -4), G(-1, -1), S(-2, -5)

Then use the rule $(x, y) \rightarrow (x + 2, y + 1)$



3. $(x, y) \rightarrow (x + 3, y - 2)$



4. Given the following points and rule, find the ordered pair for the image.

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

D(-4, 1) \rightarrow

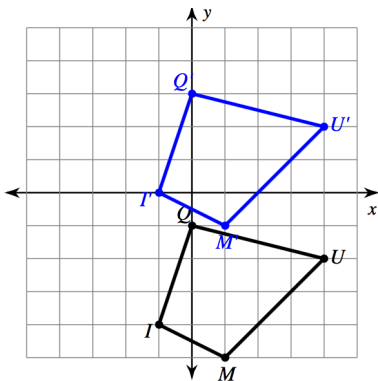
A(-2, 5) \rightarrow

S(-1, 4) \rightarrow

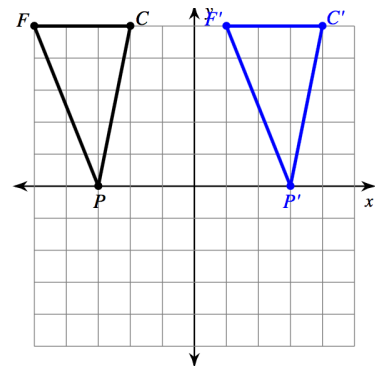
H(-1, 2) \rightarrow

5. Give the rule for the following translations.

a.

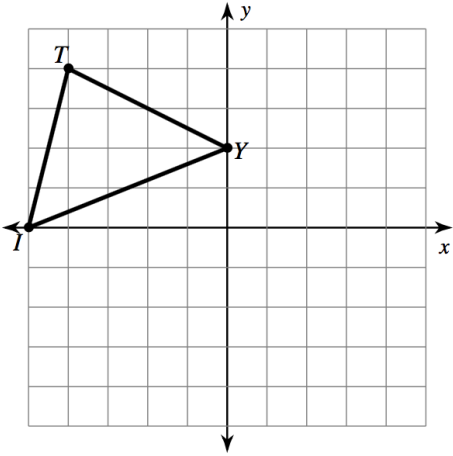


b.

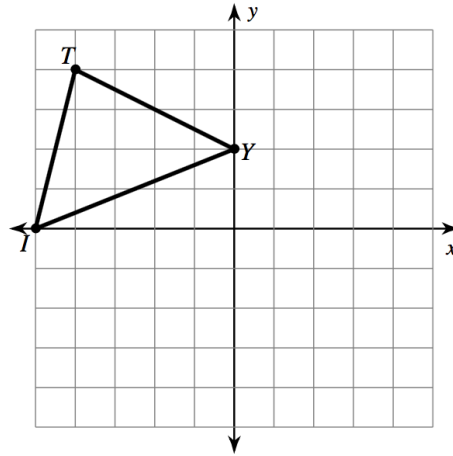


Reflection Practice

6. Reflect over $y = 1$

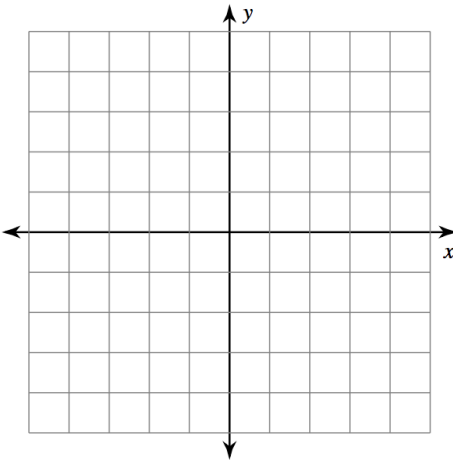


7. Reflect over $y = x$



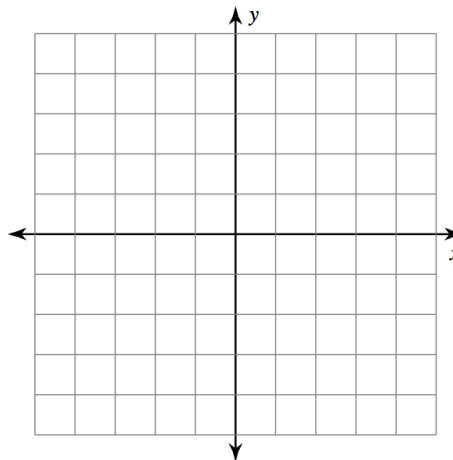
8. Graph the points:
 $T(1, 5)$, $R(0, -4)$, $Y(2, -5)$

Then reflect over $x = -1$

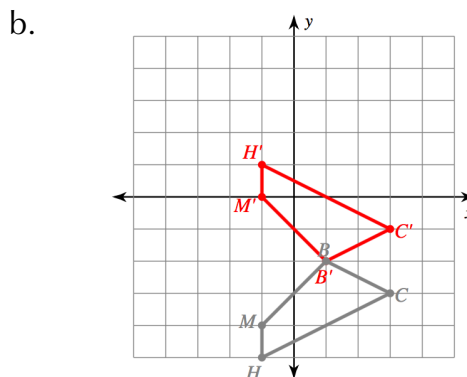
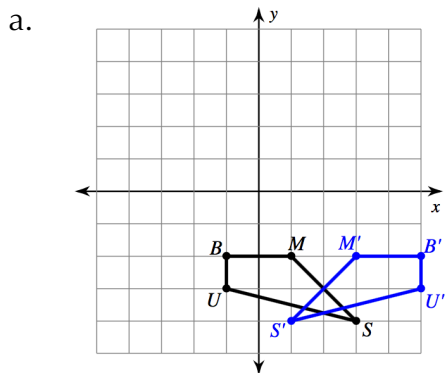


9. Graph the points:
 $K(2, 2)$, $E(2, 5)$, $Y(5, 4)$, $S(5, 0)$

Then reflect over the x axis.

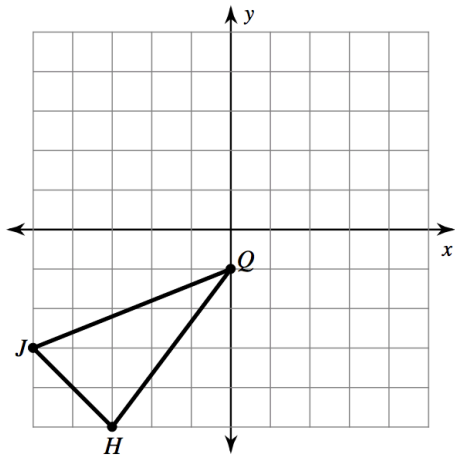


10. Write the equation for the line of reflection for each of the given reflections.

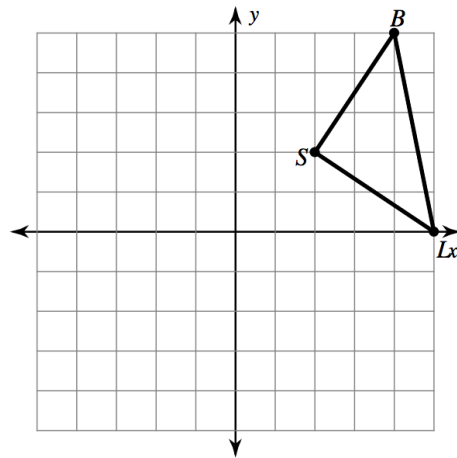


Rotation Practice

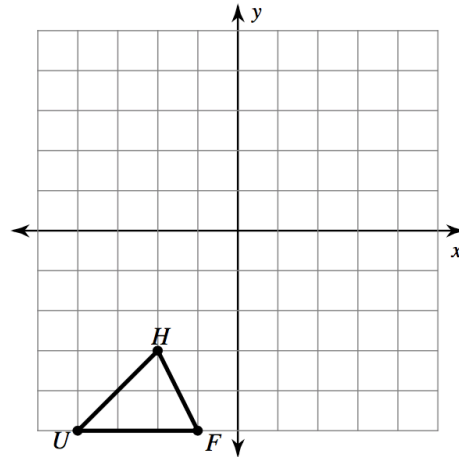
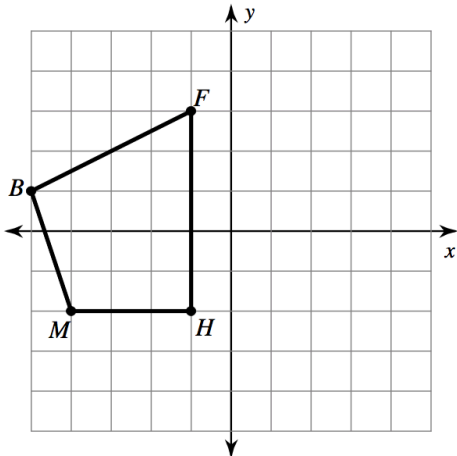
11. Rotate 180° about the origin.



12. Rotate 90° counterclockwise about the origin.



13. Rotate 90° clockwise about the point H. 14. Rotate 180° about the origin.



15. Give the directions to rotate that would result in the given image. (direction, amount, point)

