Warmup 2/(1/10 of a half-turn)

Created by Mr. Lischwe

Will the equation be linear or not? Explain how you know.

1) $y = \sqrt{x+3}$

2) $y = \frac{5}{3}x - 4$

3) $y = 4x^3 - 17$

4) $y = 4 + \frac{8}{x}$

5) $y = 4 + \frac{x}{8}$

6) $y = |3x - 4|$

7) $f(x) = -2.75x$

8) $y = 3x^1 - 4$

9) $y = x(x+5)$

******LOOK INSIDE YOUR DESK.**

THERE NEEDS TO BE:

- **ONE graphing sheet**
- **ONE marker**
- **ONE eraser**

IF THERE IS NOT, PLEASE GET THEM FROM THE CABINET. NO, YOU MAY NOT GET A MARKER FROM THE TRAY. THERE ARE ENOUGH!

Go over Angles Quiz

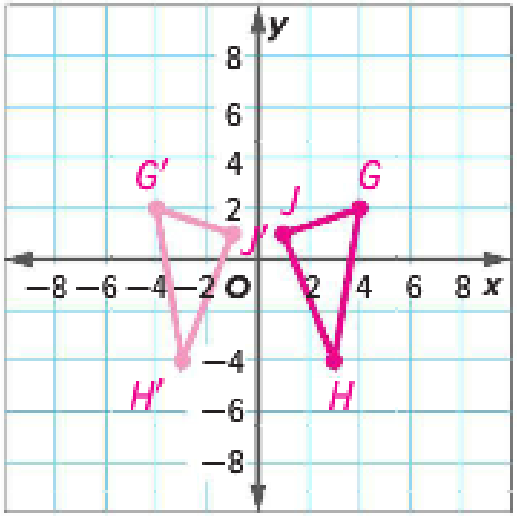
Exponents Test (The one with Tasks) Deadline…

- **Two days from now! (Thursday, 2/20)**

- **You must turn in your extra practice/corrections by tomorrow**

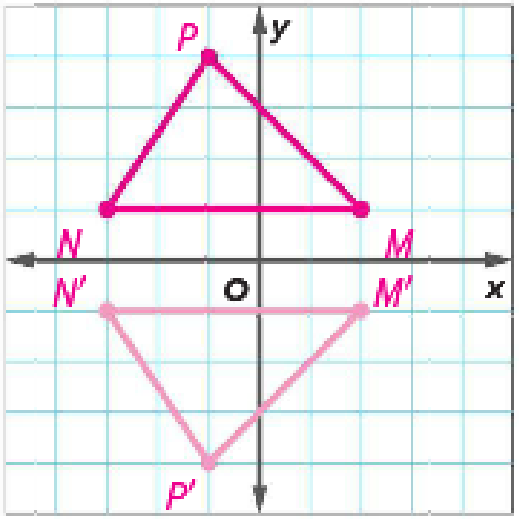
p.465 (1 – 7), p. 468 (20, 21)

1 △*GHJ* with vertices *G*(4, 2), *H*(3, −4), and *J*(1, 1) over the *y*-axis



G′(−4, 2), H′(−3, −4), J′(−1, 1)

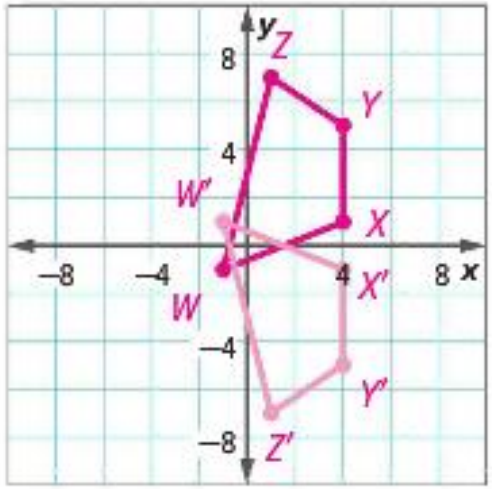
2. △*MNP* with vertices *M*(2, 1), *N*(−3, 1), and *P*(−1, 4) over the *x*-axis



M′(2, −1), N′(−3, −1), P′(−1, −4)

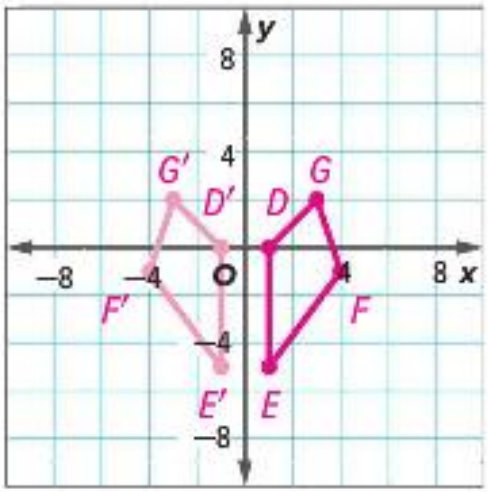
p.465 (1 – 7), p. 468 (20, 21)

3. quadrilateral *WXYZ* with vertices *W*(−1, −1), *X*(4, 1), *Y*(4, 5), and *Z*(1, 7) over the *x*-axis



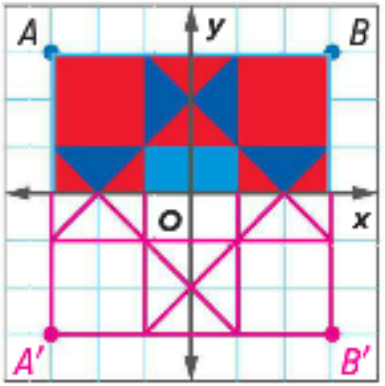
W′(−1, 1), X′(4, −1), Y′(4, −5), Z′(1, −7)

4. quadrilateral *DEFG* with vertices *D*(1, 0), *E*(1,−5), *F*(4, −1), and *G*(3, 2) over the *y*-axis



D′(−1, 0), E′(−1, −5), F′(−4, −1), G′(−3, 2)

5. The figure at the right is reflected over the x-axis. Find the coordinates of point A' and point B'. Then sketch the image on the coordinate plane. (Example 3)



A′(−3, −3), B′(3, −3)

MP **Identify Structure** **The coordinates of a point and its image after a reflection are given. Describe the reflection as over the x-axis or y-axis.**

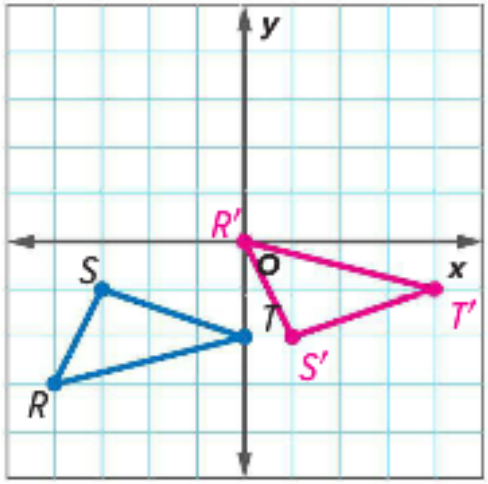
6. $A(-3, 5) \rightarrow A'(3, 5)$ **y-axis**

7 $M(3, 3) \rightarrow M'(3, -3)$ **x-axis**

20. Graph the image of triangle *RST* after it is reflected over the *x*-axis then translated 4 units to the right and 3 units down.

What are the vertices of triangle *R′S′T′*?

$R'(0, 0), S'(1, -2), T'(4, -1)$



21. The figure shown at the right was transformed from Quadrant II to Quadrant III.

Fill in each box to make a true statement to describe the transformation.

The figure was **reflected** over the ***x*-axis** .

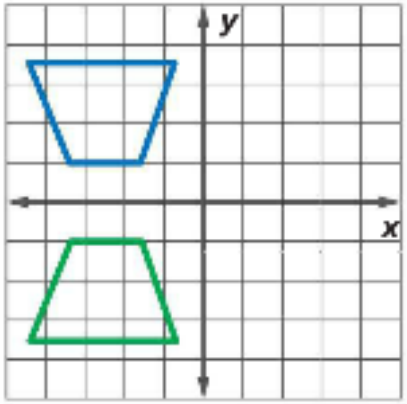


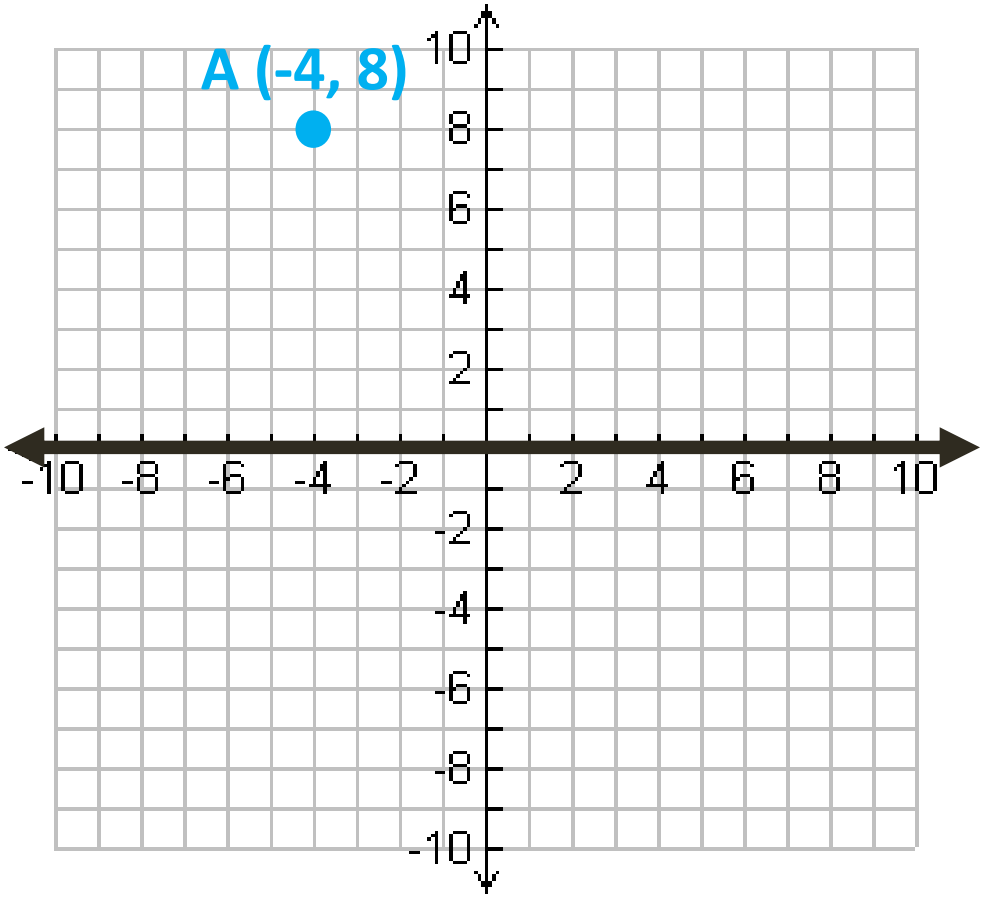
Table of Contents (2nd Semester)

p. 1 Exponent Basics (1.2)
p. 2 Zero and Negative Exponents (1.5)
p. 3 Multiplying and Dividing Powers (1.3)
p. 4 Power to a Power (1.4)
p. 5 Scientific Notation (1.6)
p. 6 Calculating with Scientific Notation (1.7)
p. 7 Angle Basics
p. 8 Angles formed by Parallel Lines
p. 9 Angle Sums of a Triangle (Guided)
p. 10 Transformations (6.1 – 6.3)

Back to this page!!!

Shortcut to reflections?

- Where will point **A** end up???



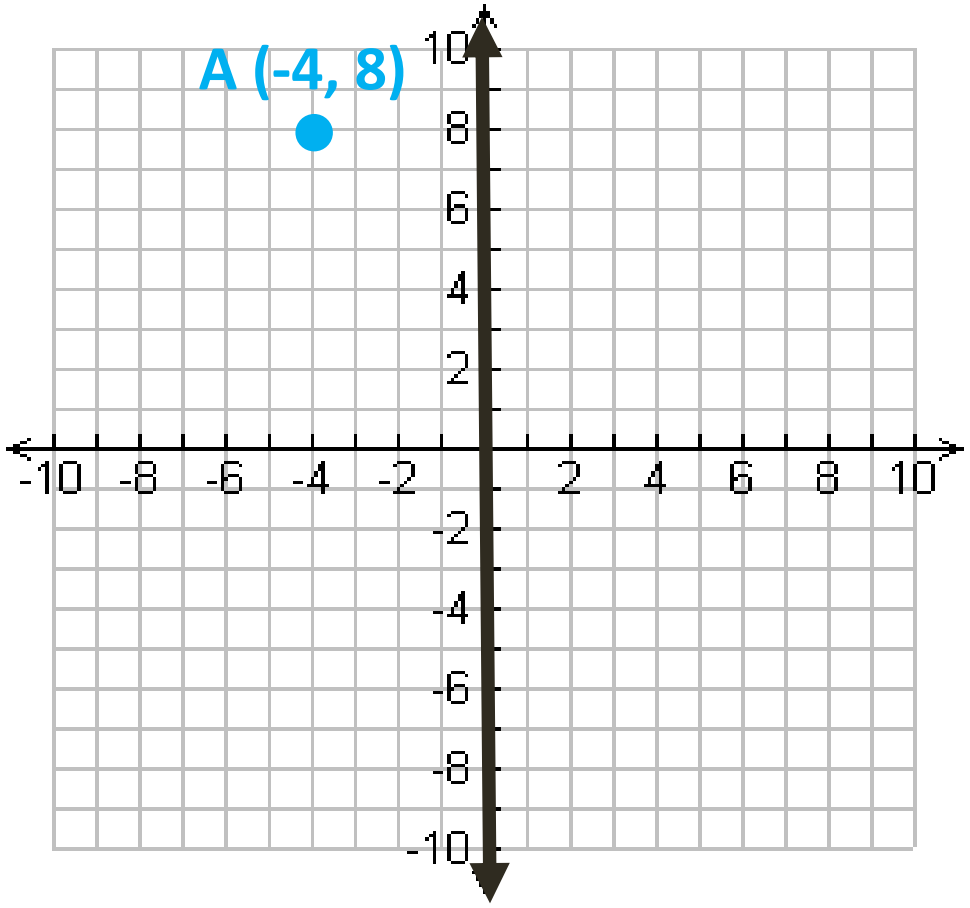
Reflecting Across the x-axis:

- x stays the same, y becomes the opposite

Coordinate notation is (x, -y)

Shortcut to reflections?

- Where will point **A** end up???



Reflecting Across the x-axis:

- x stays the same, y becomes the opposite

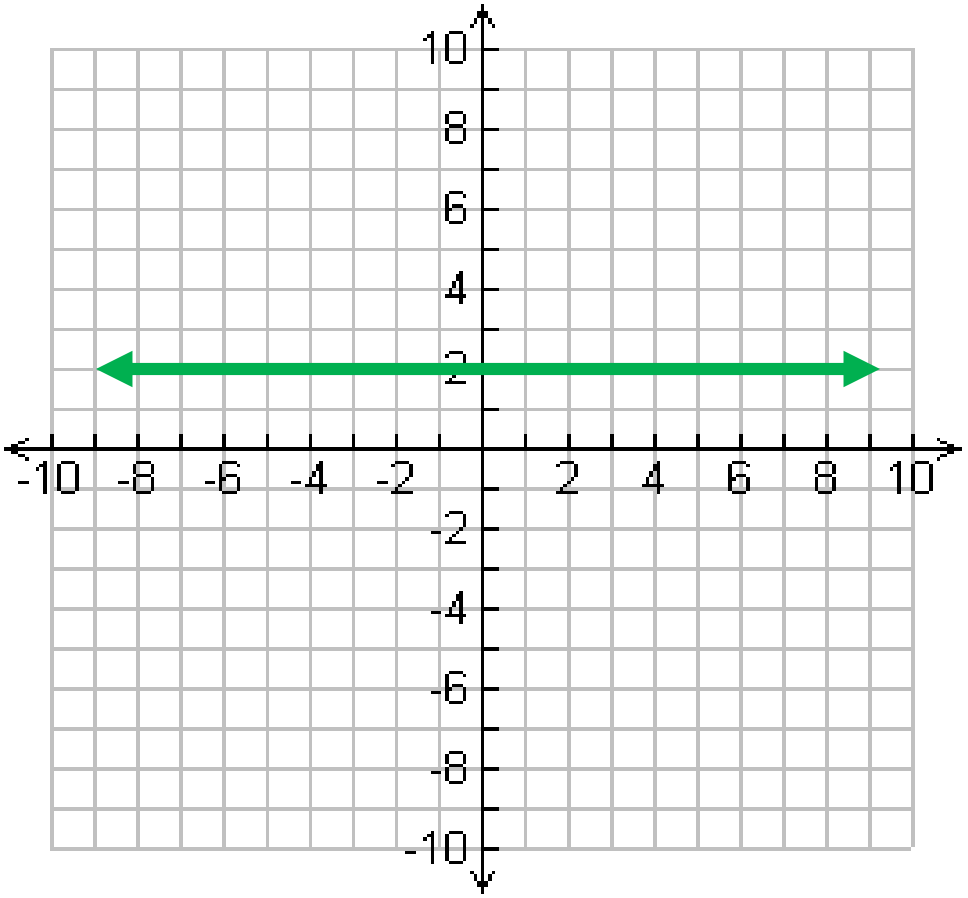
Reflecting Across the y-axis:

- x becomes the opposite, y stays the same

Coordinate notation is (-x, y)

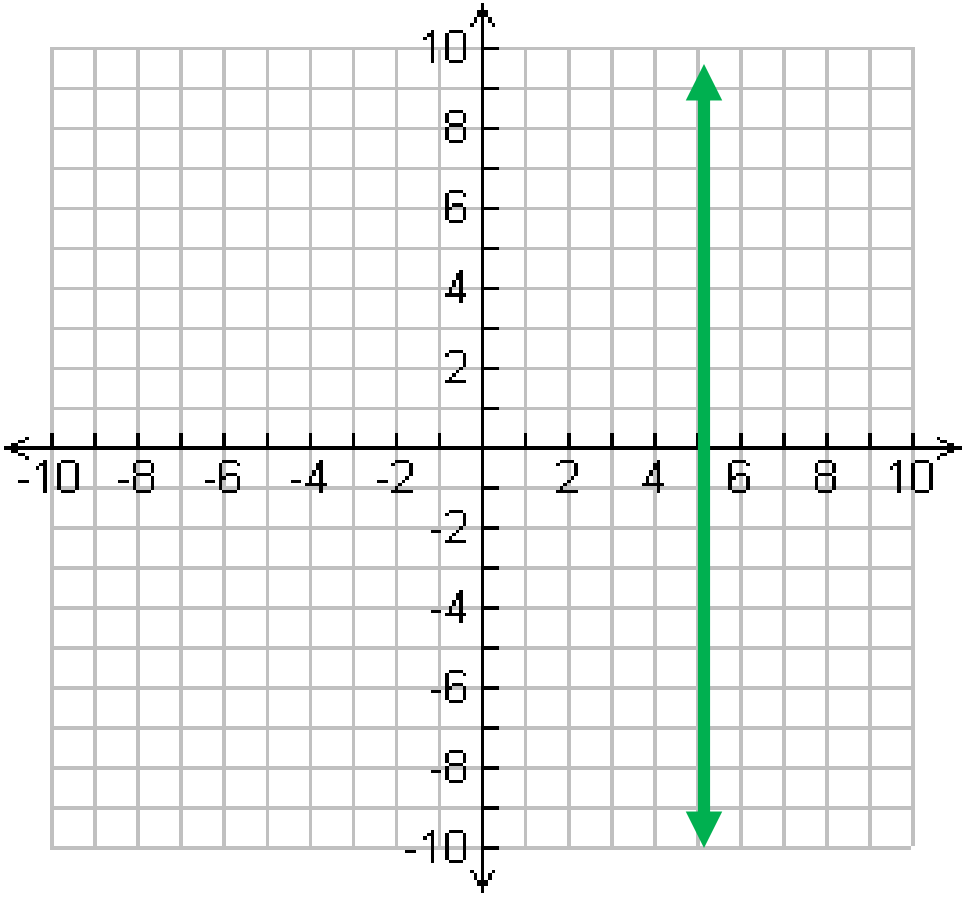
How do I draw…

- The graph of the line **y = 2?**



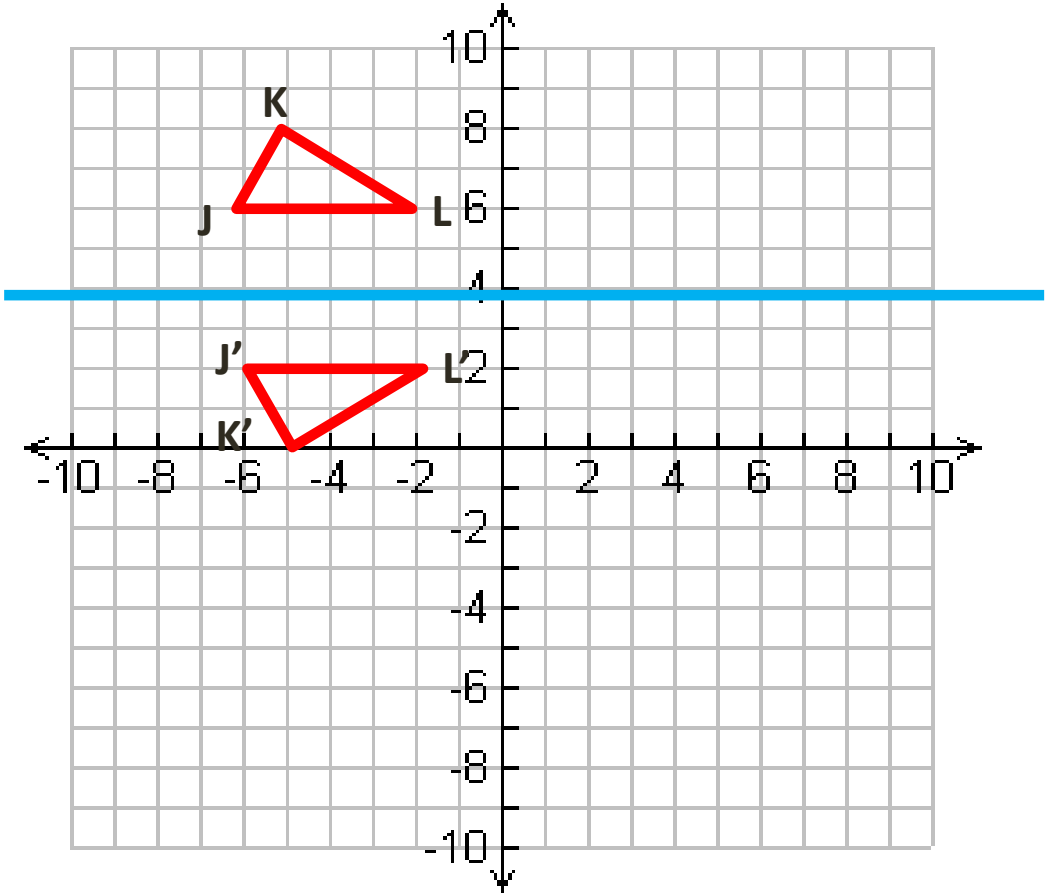
How do I draw…

- The graph of the line **x = 5?**



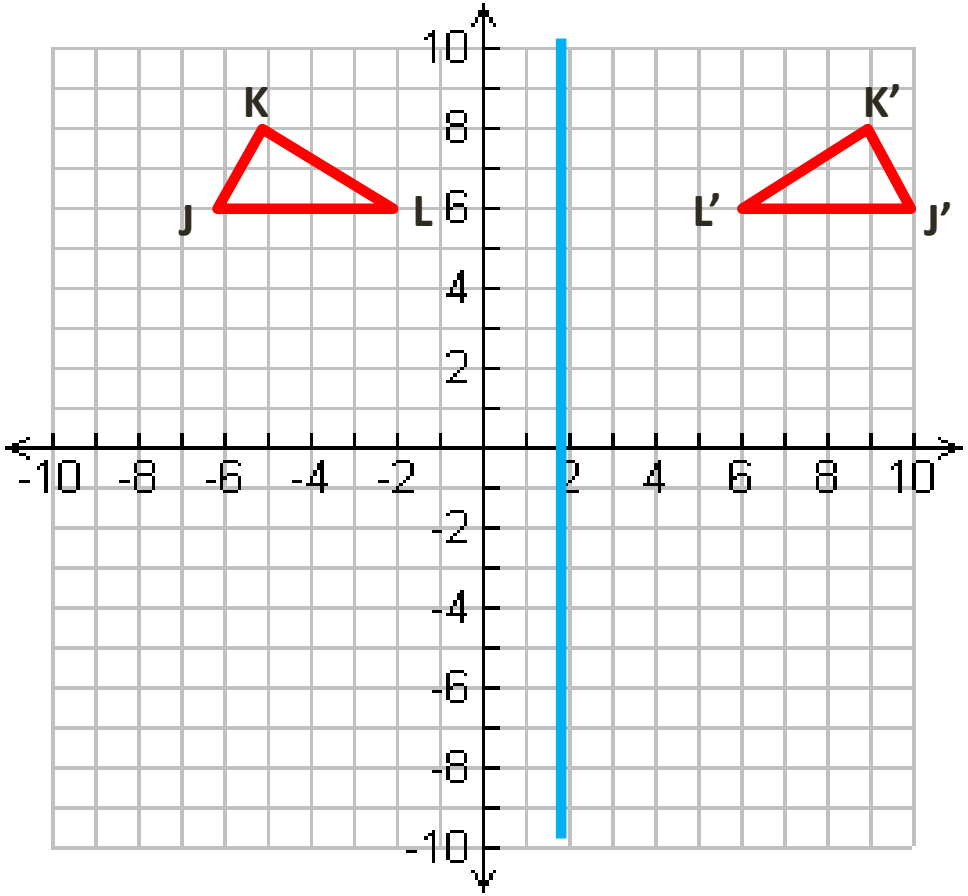
Harder ones:

- **J(-6, 6) K(-5, 8) L(-2, 6)**
- **Reflect across the line y = 4!**



Harder ones:

- **J(-6, 6) K(-5, 8) L(-2, 6)**
- **Reflect across the line x = 2!**



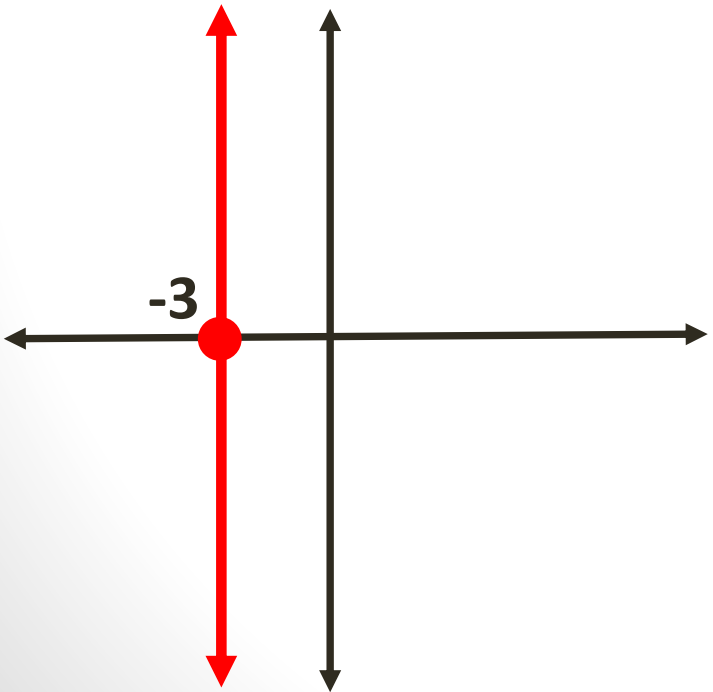
COPY:

x = number: vertical line

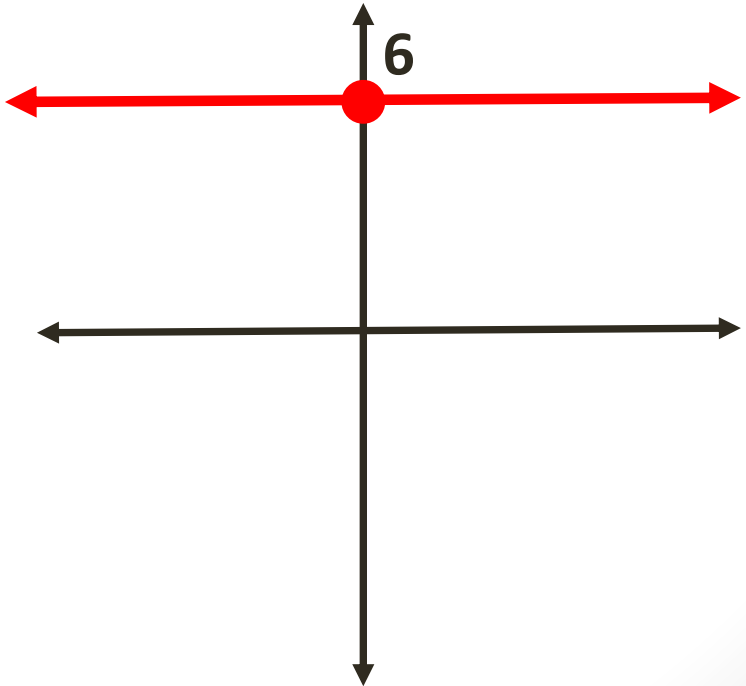
y = number: horizontal line

Examples

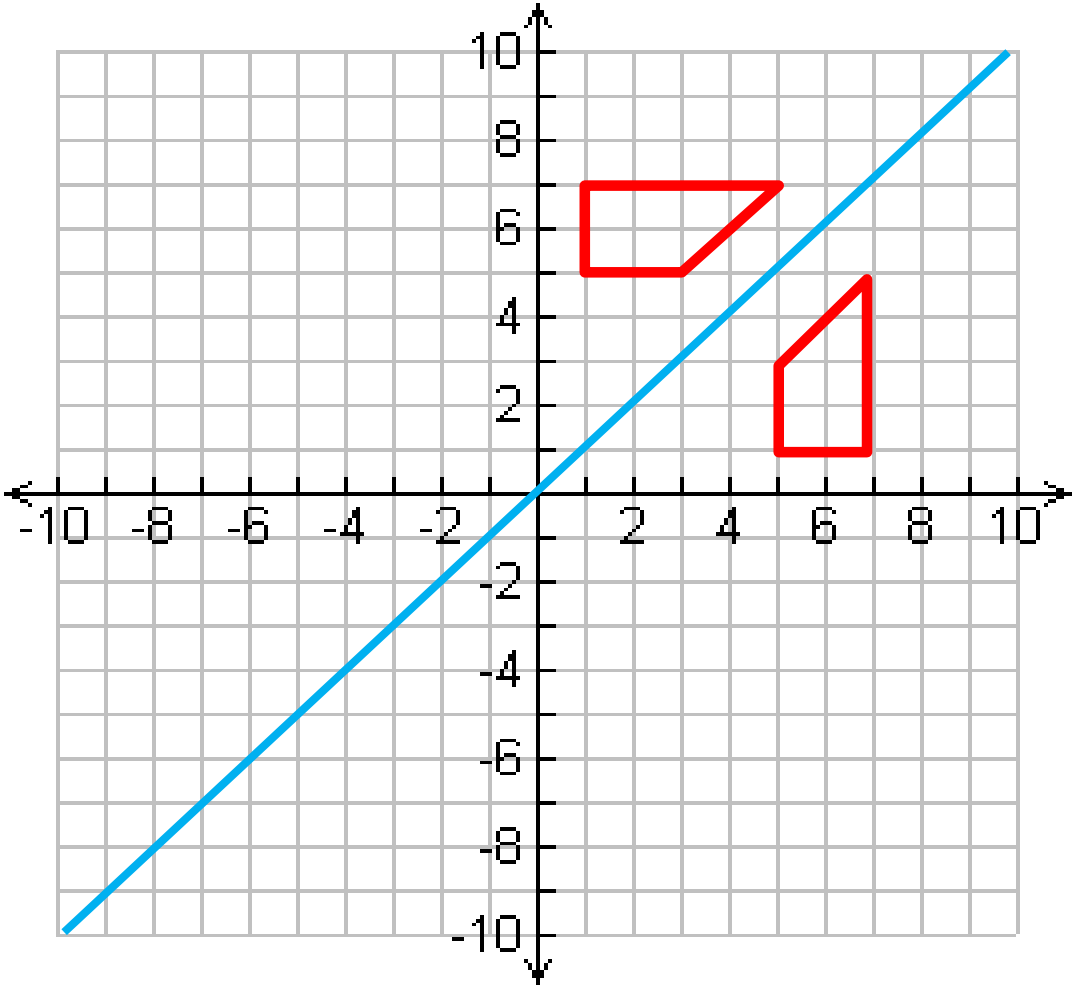
x = -3



y = 6



Challenge: Reflect the figure across the line!



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p. 6 Calcluating with Scientific Notation (1.7)
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p. 8 Angles formed by Parallel Lines (5.1)
p. 9 Transformations (6.1 – 6.3)
p. 10 Rotations (Handout)

Transformations

Today's Objectives (Rotations):

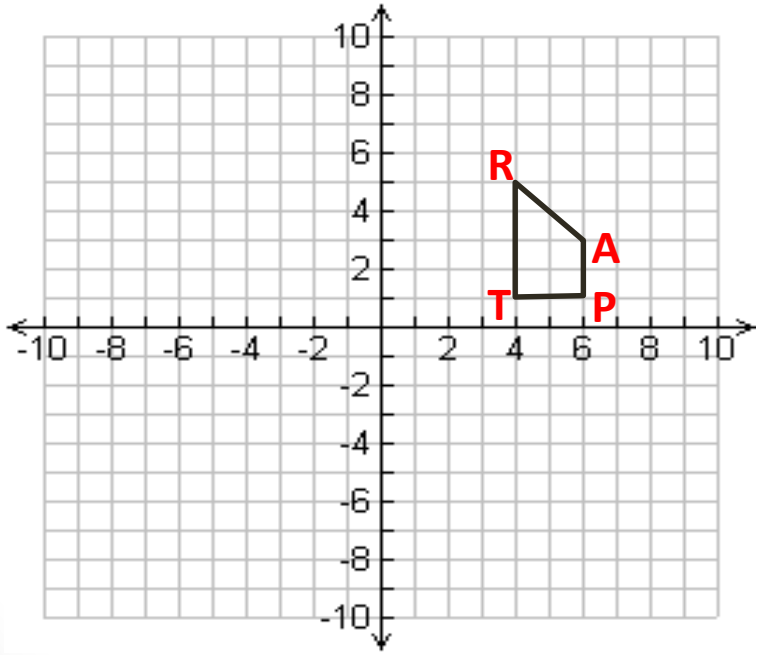
- Use patty paper to rotate a shape any number of degrees around a point
- Use patty paper to rotate a shape 90^o, 180^o, or 270^o on a coordinate plane
- Rotate a shape on a coordinate plane WITHOUT patty paper

Rotations Video (2 min)

- https://www.youtube.com/watch?v=1sxmI4Y1K3s

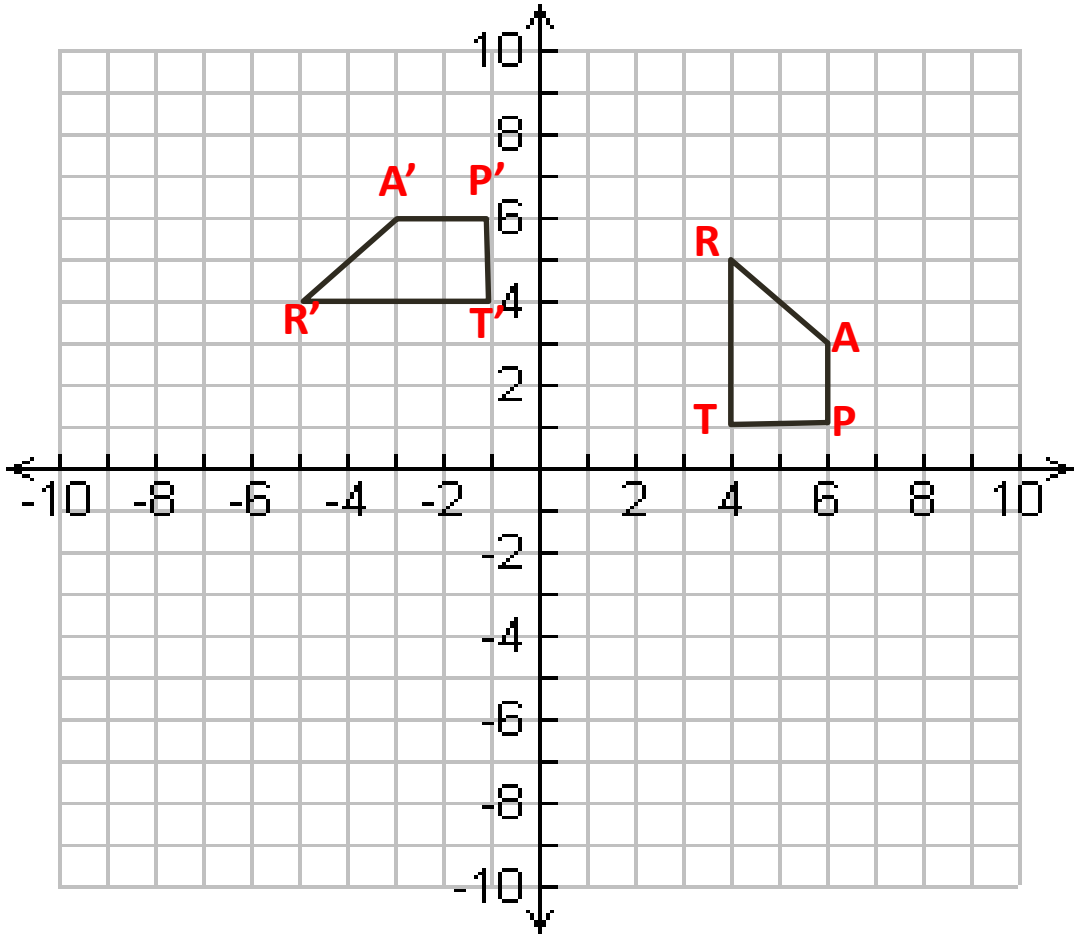
Rotations on the Coordinate Plane – WITH Patty Paper

- Look at graph #1.
- We are going to rotate the trapezoid 90° counterclockwise, using the origin as the point of rotation. Without patty paper, try to predict exactly where it will end up.



Rotations on the Coordinate Plane – WITH Patty Paper

- **T(4, 1); R(4, 5); A(6, 3); P(6, 1)**.
- We are going to rotate the trapezoid 90^{o} counterclockwise.
- Use patty paper to trace the trapezoid **and the x- and y-axis.**
- Turn the patty paper 90^{o} counterclockwise until the x- and y-axis line up again.
- Write down the new coordinates of T', R', A', and P' somewhere or memorize their locations.
- Remove the patty paper and draw your new trapezoid using those coordinates.


A’
P’
R’
T’
R
A
T
P
10
8
6
4
2
-10
-8
-6
-4
-2
2
4
6
8
10
-2
-4
-6
-8
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