WARMUP

Created by Mr. Nam

2/ $\left[(-1)^4 + (-1)^9 + 2(-1)^6 + (-1)^{144} + (-1) + 3(-1)^{258} + 2(-1)^{604} + 3(-1)^{1700}\right]$

NEED: Ruler

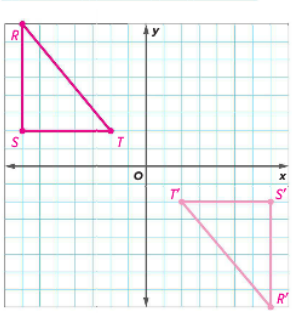
1. **If a figure starts in quadrant 2 and it rotates 90° clockwise, where does it end up?**
2. **If a figure starts in quadrant 4 and it rotates 270° clockwise, where does it end up?**
3. **If a figure starts in quadrant 1 and it rotates 180° counterclockwise, where does it end up?**
4. **If you rotate a shape 270° counterclockwise, this is the same as rotating it how many degrees clockwise?**
5. **Verify that the problem in the date is correct.**

P. 479 (1, 4)

Triangle *RST* represents the placement of Tyra's tricycle in the driveway and has vertices *R*(−7, 8), *S*(−7, 2), and *T*(−2, 2). Graph the figure and its rotated image after a clockwise rotation of 180° about the origin. Then give the coordinates of the vertices for triangle *R′S′T′*. (Example 2)

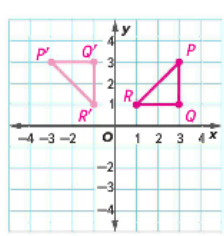
Show your work.

***R′*(7, −8), *S′*(7, −2), *T′*(2, −2)**



4. The right isosceles triangle *PQR* has vertices *P*(3, 3), *Q*(3, 1), and *R*(*x*, *y*) and is rotated 90° counterclockwise about the origin. Find the missing vertex of the triangle. Then graph the triangle and its image. **Sample answer:**

R(*x*, *y*) = *R*(1 _____, 1 _____)



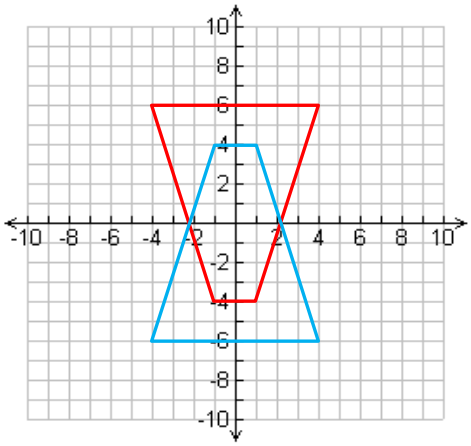
You could have also put "R" at (1, 3), (5, 1), or (5, 3)!

CHECK FOR UNDERSTANDING

- **Just do what you can!**
- **No patty paper.**
- **Hold it up when done!**

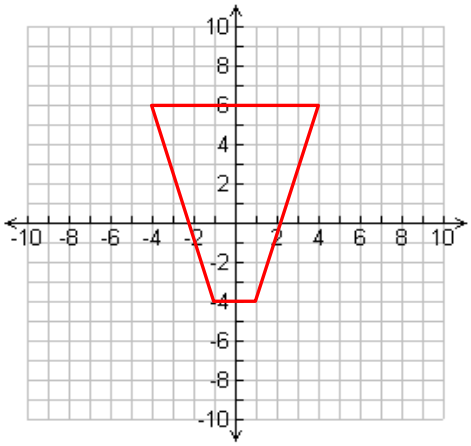
BRAVE VOLUNTEER…

Reflect this shape across the x-axis.



BRAVE VOLUNTEER…

Reflect this shape across the y-axis.

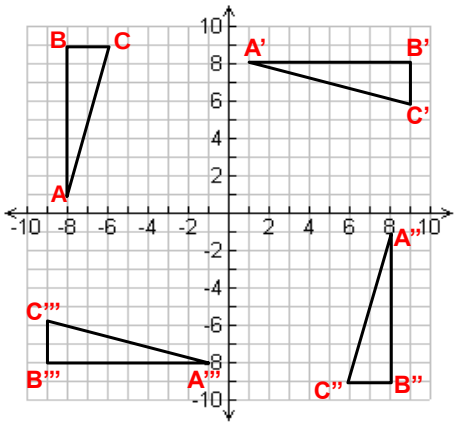


It's the same!!!

BACK TO YOUR SHEET OF GRAPHS FROM YESTERDAY…

Draw this triangle:

1. **Rotate it 90º clockwise about the origin. Label this triangle A'B'C'.**
2. **Rotate it 90º MORE clockwise. Label this A"B"C".**
3. **Rotate it 90º MORE clockwise. Label this A'''B'''C'''.**



OBJECTIVE

- **Perform a sequence of transformations of the same figure**

MULTIPLE TRANSFORMATIONS IN ONE

******TURN TO THE BACK OF YOUR NOTES SHEET FROM YESTERDAY!******

- **Start on the top row. Label each graph in order: "Challenge 1, Challenge 2, Challenge 3"…all the way to Challenge 7.**
- **You will be performing multiple transformations on the same shape. <u>YOU MUST LABEL YOUR POINTS AS YOU GO.</u>**
- **Use 1 prime mark for the first transformation, 2 prime marks for the second, and so on.**
- **Once you finish Challenges 1 – 4, and you are correct, raise your hand and I will give you Challenges 5 – 7. <u>These are more difficult!!!</u>**

MULTIPLE TRANSFORMATIONS IN 1:

You MUST label the vertices of your final image!!!

Challenge 1

- **Start with: F(-2, 8) U(-4, 6) N(-2, 2)**
- **First reflect across the y-axis, then translate 6 units right and 1 unit up, then reflect across the x-axis.**

Challenge 2

- **Start with: M(5, -7) E(5, -4) I(7, -2) G(9, -4) S(9, -7)**
- **First rotate 180º about the origin, then reflect across the y-axis, then reflect across the x-axis**

Challenge 3

- **Start with: K(-8, 2) I(-7, 4) T(-4, 2) E(-5, -2)**
- **First reflect across the x-axis, then rotate 90º counterclockwise about the origin, then translate 2 units right and 5 units up**

Challenge 4

- **Start with: W(-3, 6) I(-3, 8) O(3, 8) A(3, 6)**
- **First translate 4 units left and 1 unit down, then reflect across the y-axis, then rotate 90º clockwise about the origin, then reflect across the line x = 2**

HOMEWORK

- **Finish Challenges 1 – 4.**
- **Extra LiveSchool points awarded for Challenges 5 – 7!**
- **+ 30 Minutes of ALEKS**