

**August 6, 2018**

Rotate a square located at (1,1) (3,1) (3,3) and (1,3) in to quadrant 2, then reflect the square across the x-axis. Write a rule for the transformations.

Today -  
 geogebra reflection  
 find the  $x = y$  line & the  $x = -y$  line  
 reflect over these lines  
 Study Guide for tomorrow's quiz

Aug 6-7:45 AM

**Rule: ?**  
 $R_{90} R_{x\text{-axis}}$   
 preimage    Rotation    Reflection

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\*Geogebra reflections over the x-y line  
 \*mrvolamath reflections over the x-y line

Find the coordinate of the vertices of the image  
 preimage    image  
 D(2,0)    D'(0,2)  
 E(2,2)    E'(2,2)  
 F(5,2)    F'(2,5)  
 G(5,1)    G'(1,5)

Reflect this across the  $y = x$  line  
 $(x,y) \rightarrow (y,x)$   
 Rule for reflection across  $y = x$  line!

Aug 6-7:50 AM

**Explain 2 Drawing Reflections on a Coordinate Plane**

The table summarizes coordinate notation for reflections on a coordinate plane.

| Rules for Reflections on a Coordinate Plane |                               |
|---|-------------------------------|
| Reflection across the x-axis                | $(x, y) \rightarrow (x, -y)$  |
| Reflection across the y-axis                | $(x, y) \rightarrow (-x, y)$  |
| Reflection across the line $y = x$          | $(x, y) \rightarrow (y, x)$   |
| Reflection across the line $y = -x$         | $(x, y) \rightarrow (-y, -x)$ |

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Reflect the following over the line  $y = -x$   
 preimage    image  
 A(-3,3)    A'(-3,-3) = (-3,3)  
 B(-2,0)    B'(-0,-2) = (0,2)  
 C(-5,-1)    C'(1,5)

| Rules for Reflections on a Coordinate Plane |                               |
|---|-------------------------------|
| 1 Reflection across the x-axis              | $(x, y) \rightarrow (x, -y)$  |
| 2 Reflection across the y-axis              | $(x, y) \rightarrow (-x, y)$  |
| 3 Reflection across the line $y = x$        | $(x, y) \rightarrow (y, x)$   |
| 4 Reflection across the line $y = -x$       | $(x, y) \rightarrow (-y, -x)$ |

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**Your Turn**

$\triangle A'B'C'$  is the image of  $\triangle ABC$  under a reflection. On a coordinate grid, draw  $\triangle ABC$ ,  $\triangle A'B'C'$ , and the line of reflection.

12.

13.

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**Explain 4 Applying Reflections**

**Example 4**  
The figure shows one hole of a miniature golf course. It is not possible to hit the ball in a straight line from the tee  $T$  to the hole  $H$ . At what point should a player aim in order to make a hole in one?

Aug 6-8:00 AM

**Study Guide!**

Unit 1 **Translations & Reflections** Name \_\_\_\_\_

Describe the transformation.

- Given  $A = (5, 4)$ , describe the transformation if  $A' = (0, 0)$ .
- Given  $C = (3, -2)$ , describe the transformation if  $C' = (-1, 32)$ .
- Given  $A = (3, -5)$ , where would  $A'$  be if  $T(x - 3, y + 4)$  occurred?
- Given  $A = (5, 4)$ , where would  $A'$  be if it was reflected over the line  $y = 0$ ?
- Reflect across the line  $x = 0$ .
- Reflect about the line  $y = 0$ .

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**True or False: Circle the correct answer. 7-11**

- True or False 7. Quadrilateral  $A'B'C'D'$  is the pre-image.
- True or False 8.  $AA' \perp AA'$
- True or False 9. Quadrilateral  $ABCD$  is congruent to the quadrilateral  $A'B'C'D'$ .
- True or False 10. The transformation shown is not a reflection.
- True or False 11. Quadrilateral  $ABCD$  was translated to create quadrilateral  $A'B'C'D'$ .

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12 Write a translation rule to describe the transformation.

$T(x, y) = ( \quad , \quad )$

- Given  $G = (4, 3)$  and  $G' = (-4, 3)$ , what is the line of reflection?
- A figure is transformed by  $T(x + 4, y - 2)$  and then transformation by  $T(x - 1, y - 3)$ . How does the original pre-image relate to the final image after both transformations?

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15 Point  $P(2, 3)$  has been translated to  $P'(4, 7)$ . Where will point  $Z(4, 7)$  be located after the same translation?

a.  $Z'(8, 9)$     b.  $Z'(6, 11)$   
c.  $Z'(0, 5)$     d.  $Z'(11, 6)$

16. Graph the composition of transformations.  
 $T_{(-2, -3)}$ ;  $R_{y\text{-axis}}$

5 Bonus Points: Factor and solve the following quadratic equation:  $x^2 - 3x - 4 = 0$

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