

# Wednesday, February 20, 2019

- Warm-up

Transform  $\triangle EFG$  using the following rules.

Write each answer as a matrix.

1.  $(x, y) \rightarrow (-x, -y)$

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

$$\triangle EFG = \begin{bmatrix} 5 & 4 & -8 \\ -1 & 5 & 6 \end{bmatrix}$$

- Rotations

## Objectives:

**Content:** I will use rules to produce rigid transformations.

**Social:** I will participate in the class activities and support my group.

**Language:** I will explain how to *translate, rotate, and reflect rigid shapes using rules.*

Transform  $\triangle EFG$  using the following rules.

Write each answer as a matrix.

$$\triangle EFG = \begin{matrix} & E & F & G \\ x & 5 & 4 & -8 \\ y & -1 & 5 & 6 \end{matrix}$$

1.  $(x, y) \rightarrow (-x, -y)$

$$\begin{bmatrix} -5 & -4 & 8 \\ 1 & -5 & -6 \end{bmatrix}$$

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

$$\begin{bmatrix} -1-3 & 5-3 & 6-3 \\ 5+1 & 4+1 & -8+1 \end{bmatrix} = \begin{bmatrix} -4 & 2 & 3 \\ 6 & 5 & -7 \end{bmatrix}$$

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# Rotations

The background features a large, glowing circular shape composed of numerous overlapping, semi-transparent lines. The lines are primarily green and orange, with some yellow and blue highlights, creating a sense of motion and depth. The overall effect is reminiscent of a complex geometric pattern or a digital art piece.

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# Let's Complete the Transformation Rules Table

| <b>Geometric Idea</b><br><i>h = horizontal</i><br><i>→ k = vertical</i> | <b>Coordinate Model</b>         |
|---|---------------------------------|
| Translation <i>(oblique)</i>  | $(x, y) \rightarrow (x+h, y+k)$ |
| Reflection across x-axis  |                                 |
| Reflection across y-axis  |                                 |
| Reflection across line $y = x$  |                                 |
| Reflection across line $y = -x$   |                                 |
| *90° counterclockwise rotation  |                                 |
| *180° rotation  |                                 |
| *270° counterclockwise rotation   |                                 |



Write into your Notes

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Line  $\ell$  is graphed in the  $xy$ -plane below.

If line  $\ell$  is translated up 5 units and right 7 units, then what is the slope of the new line?

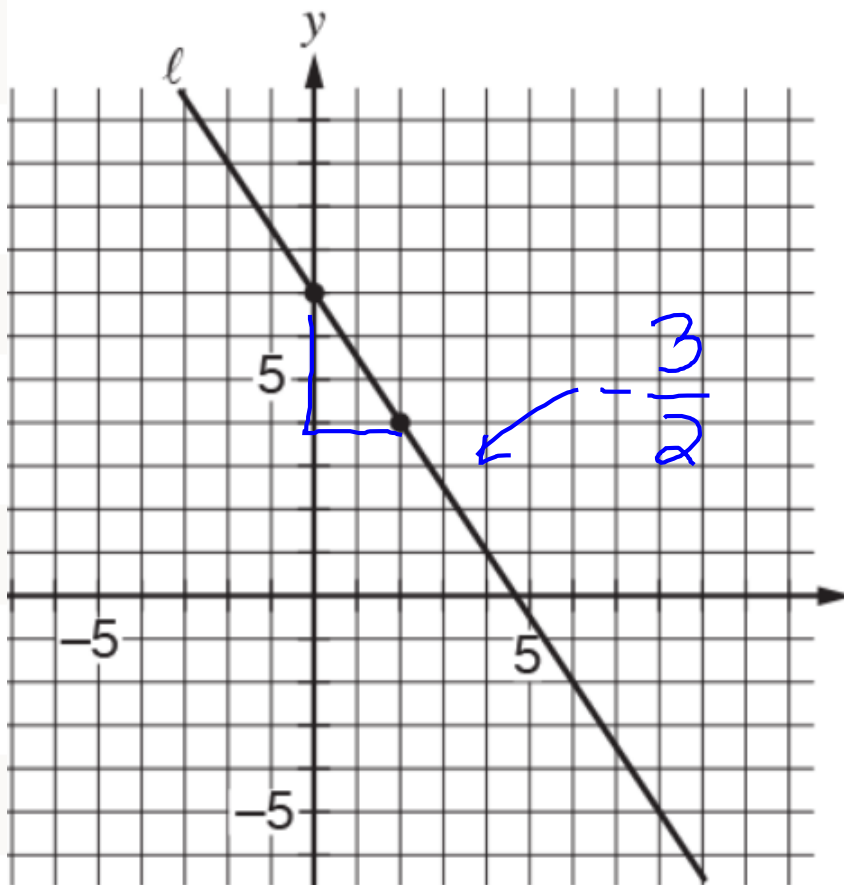
Select an Answer

(A)  $-\frac{2}{5}$

(B)  $-\frac{3}{2}$

(C)  $-\frac{8}{9}$

(D)  $-\frac{11}{14}$



### Exit Slip

- Choose an answer
- Explain your reasoning.
- Choose an incorrect answer, explain the mistake someone who chose that one made.