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$$-8(x-1) = -60$$

$$-8x + 8 = -60$$

$$-8x = -68$$

$$x = \frac{-68}{-8} = \frac{68}{8} = \frac{34}{4} = \frac{17}{2} = 8\frac{1}{2}$$

## Dilation Notes

**Dilation:** a transformation that enlarges or reduces a figure by a scale factor.

**Scale Factor (k):** ratio used to enlarge or reduce a figure.

### Steps to dilate a shape:

- 1) Multiply the coordinates of each vertex of the original shape by the scale factor (k).
- 2) Graph the new ordered pairs.

Example 1: A triangle has vertices E ( -1 , -2 ), F ( 1/4 , 3 ), and G ( 2, 2/3 ). Find the coordinates of the triangle after a dilation with a scale factor (k) of 2.

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Since the scale factor is 2, you need to multiply every coordinate within each ordered pair by 2.

$$\begin{array}{l} E' (-2, -4) \\ F' (1/2, 6) \\ G' (4, 4/3) \end{array} \quad \begin{array}{l} \frac{1}{4} \cdot 2 = \frac{1}{4} \cdot \frac{2}{1} = \frac{2}{4} = \frac{1}{2} \\ \frac{2}{3} \cdot 2 = \frac{2}{3} \cdot \frac{2}{1} = \frac{4}{3} \end{array}$$

Example 2: A triangle has vertices A ( 0 , -4 ), F ( 2 , 6 ), and G ( -9, 3 ). Find the coordinates of the triangle after a dilation with a scale factor (k) of  $\frac{1}{3}$ .

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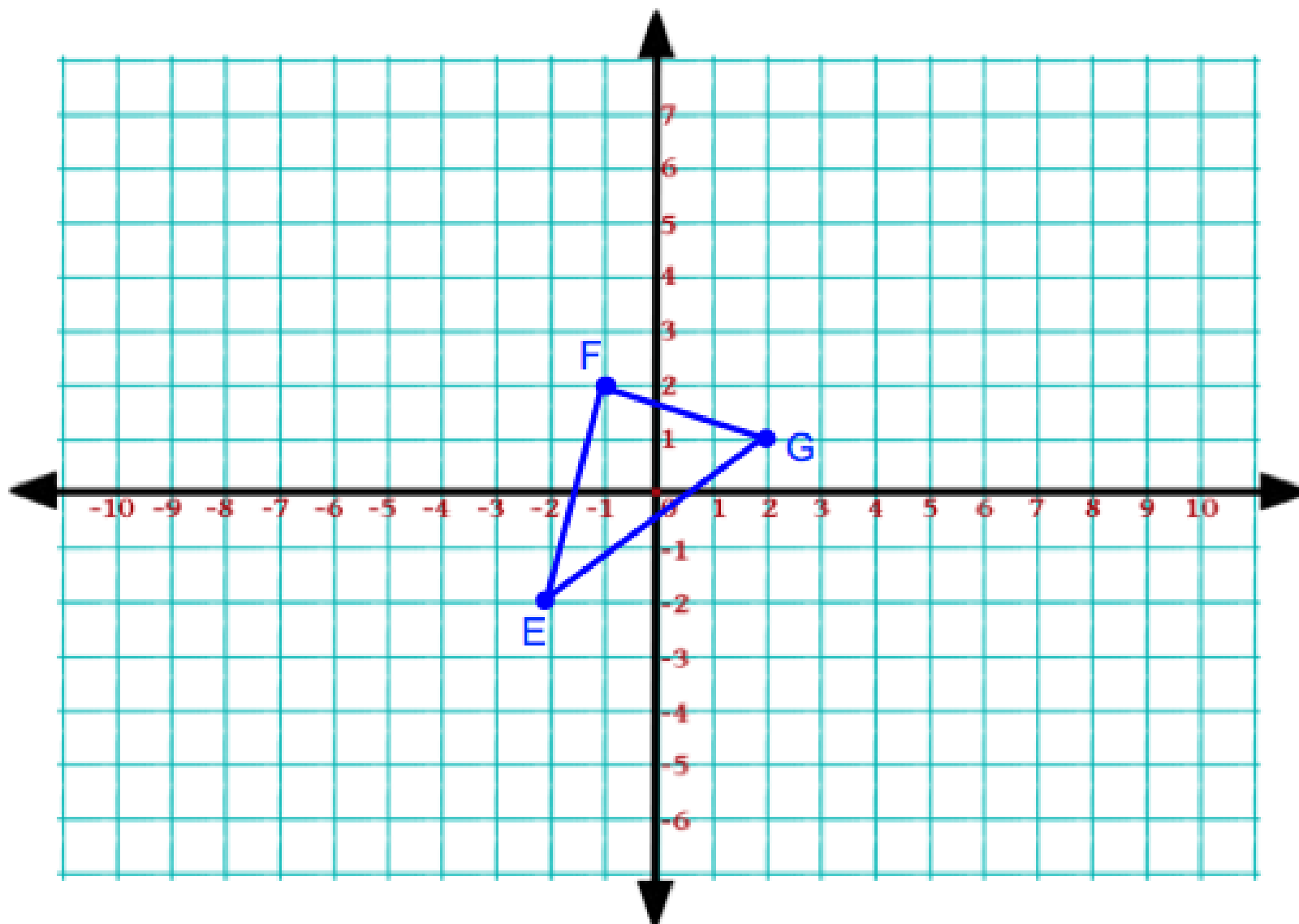
Since the scale factor is 1/3, you need to multiply every coordinate within each ordered pair by 1/3.

$$A' ( 0 , -4/3 )$$

$$F' ( 2/3 , 2 )$$

$$G' ( -3 , 1 )$$

Example 3: A triangle has vertices E ( -2 , -2 ), F ( -1 , 2 ), and G ( 2 , 1 ). Find the coordinates of the triangle after a dilation with a scale factor (k) of 3. Then graph.



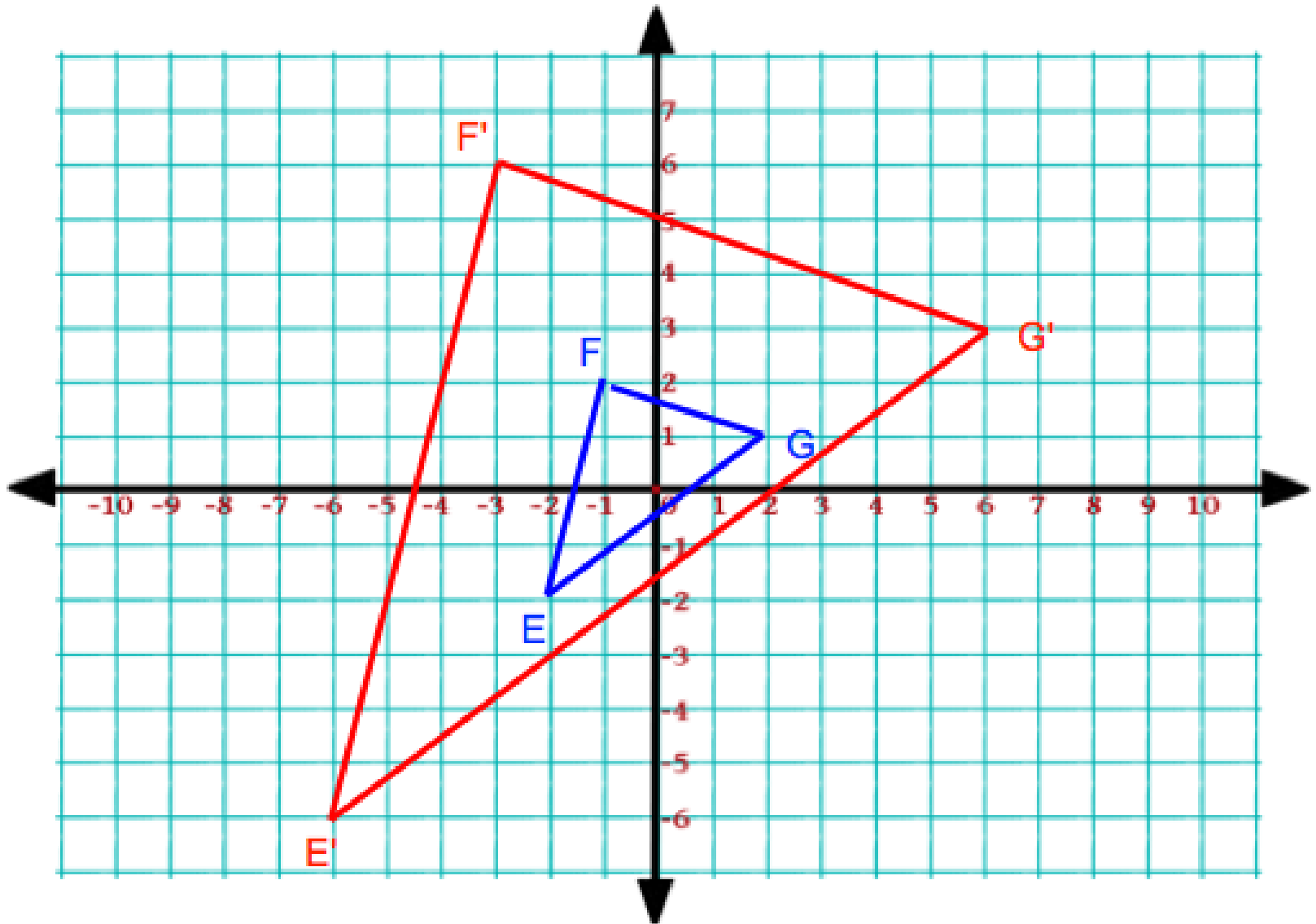


Example 3: A triangle has vertices  $E (-2, -2)$ ,  $F (-1, 2)$ , and  $G (2, 1)$ . Find the coordinates of the triangle after a dilation with a scale factor ( $k$ ) of 3. Then graph.

$E' (-6, -6)$

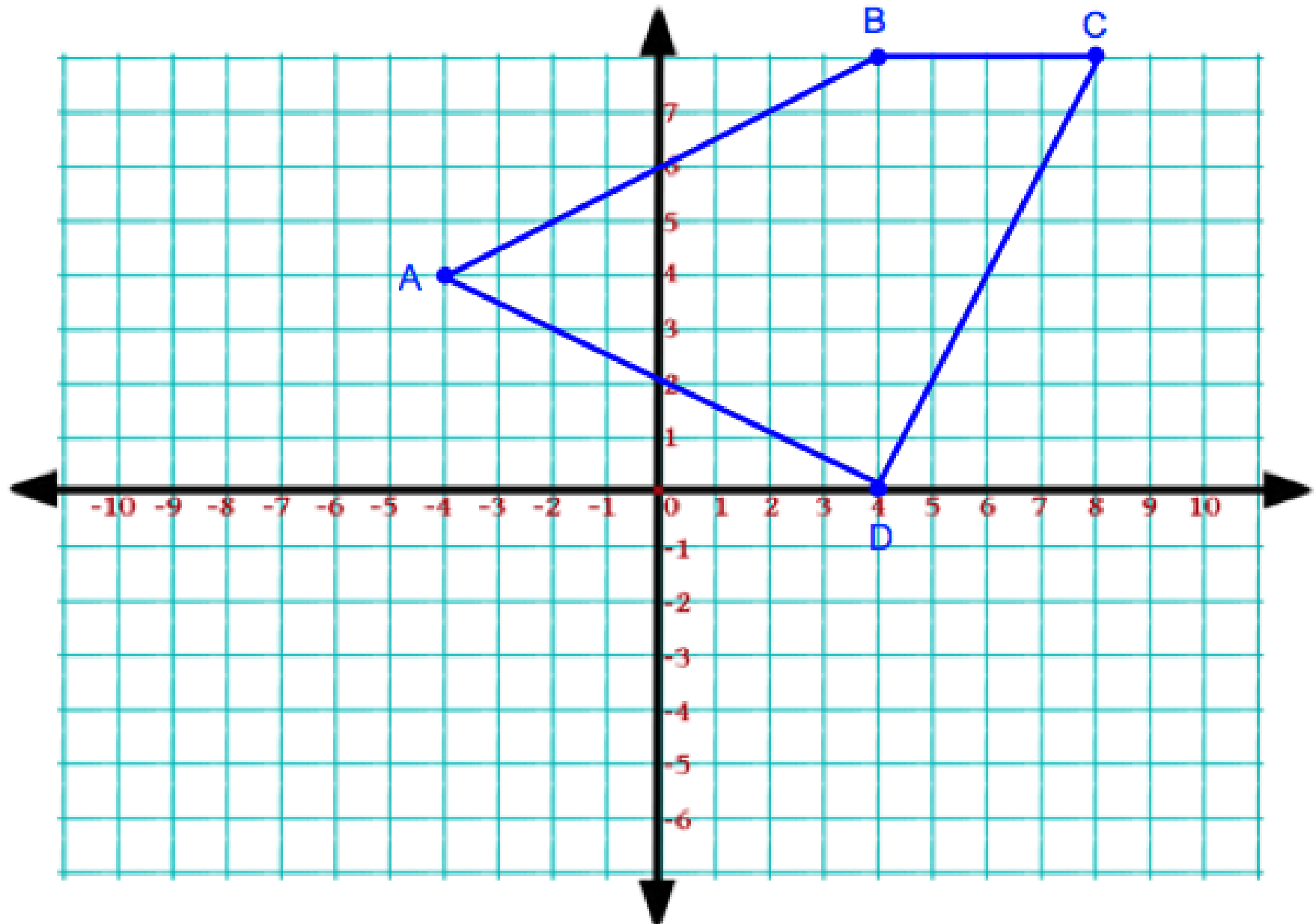
$F' (-3, 6)$

$G' (6, 3)$



Example 4: A figure has vertices A ( -4 , 4 ), B ( 4 , 8 ), C ( 8 , 8 ) and D ( 4, 0 ). Graph the figure and the image of the polygon after a dilation with a scale factor of  $\frac{1}{4}$ .

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Example 4: A figure has vertices  $A (-4, 4)$ ,  $B (4, 8)$ ,  $C (8, 8)$  and  $D (4, 0)$ . Graph the figure and the image of the polygon after a dilation with a scale factor of  $1/4$ .

