Name: _____ Date: _____

# Dilations on the Coordinate Plane

Remember, in Math the word dilate means to _____ or _____ a figure.

When you expand or shrink something, the _____ tells you by how much you need to expand or shrink it.

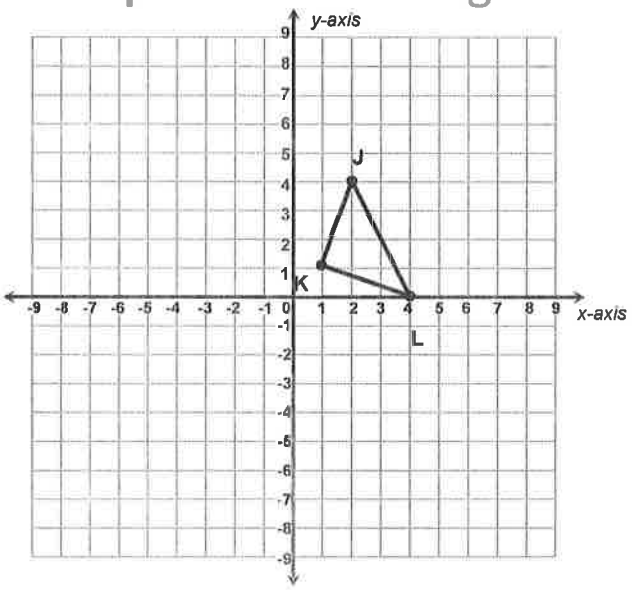
When scale factors are _____ than 1, your figure gets bigger.

**Examples:** _____

When scale factors are _____ than 1, your figure gets smaller.

**Examples:** _____

## Example 1: Dilate a figure with a scale factor > 1 (Expand)




Graph the dilated image of triangle JKL using a scale factor of 2 and (0,0) as the center of dilation.

J: _____ J': _____

K: _____ K': _____

L: _____ L': _____

### How Do I Dilate?

**Step 1:** Identify and record each point's coordinates

**Step 2:** Identify the scale factor and predict if it will expand or shrink.

**Step 3:** Multiply the coordinates by the scale factor and record the new coordinates.

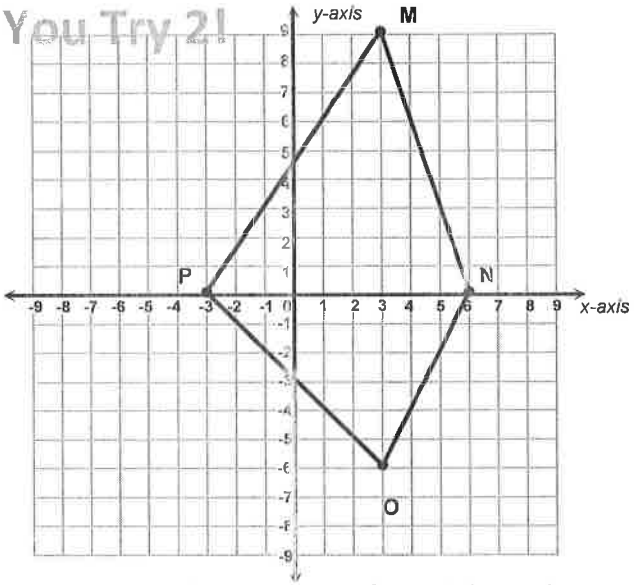
**Step 4:** Plot the new points, connect the dots, and label the image in prime notation.

**Step 5:** Check your work. Does your image match your prediction? Does it make sense?

Name: _____ Date: _____

# Dilations on the Coordinate Plane

## You Try 2!



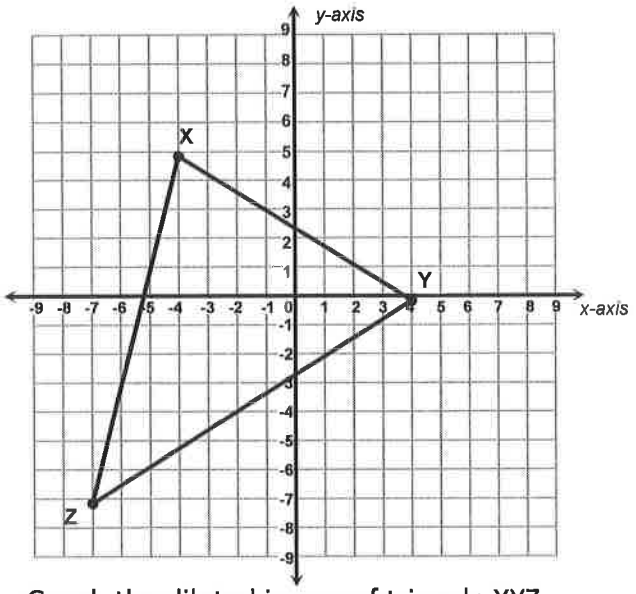

Graph the dilated image of quadrilateral MNOP using a scale factor of 1/3 and the origin as the center of dilation.

M: _____ M': _____

N: _____ N': _____

O: _____ O': _____

P: _____ P': _____



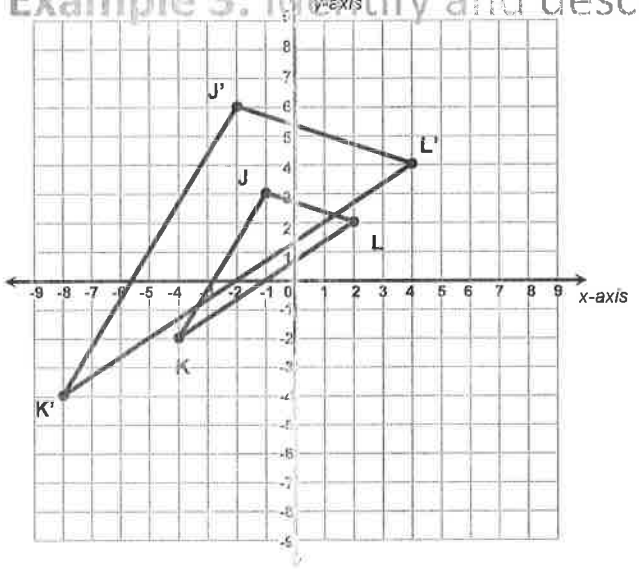

Graph the dilated image of triangle XYZ using a scale factor of .5 and (0,0) as the center of dilation.

X: _____ X': _____

Y: _____ Y': _____

Z: _____ Z': _____

## Example 3: Identify and describe a dilation.




Describe the dilation of triangle JKL, using the origin as the center.

_____

Given the coordinates for each set of vertices, choose the appropriate transformation.

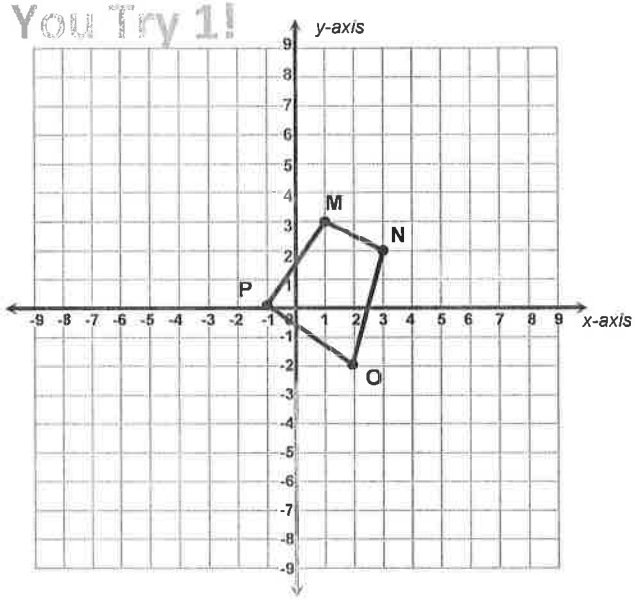
| Triangle QRS | Triangle Q'R'S' |
|---|---|
| Q: (6, 4) | Q': (3, 2) |
| R: (0, 2) | R': (0, 1) |
| S: (-8, -4) | S': (-4, -2) |

**A** Dilation with a scale factor of 2
**B** Dilation with a scale factor of 0.5
**C** Translation 1 unit down
**D** Translation 3 units left

Name: _____ Date: _____

# Dilations on the Coordinate Plane

## You Try 1!



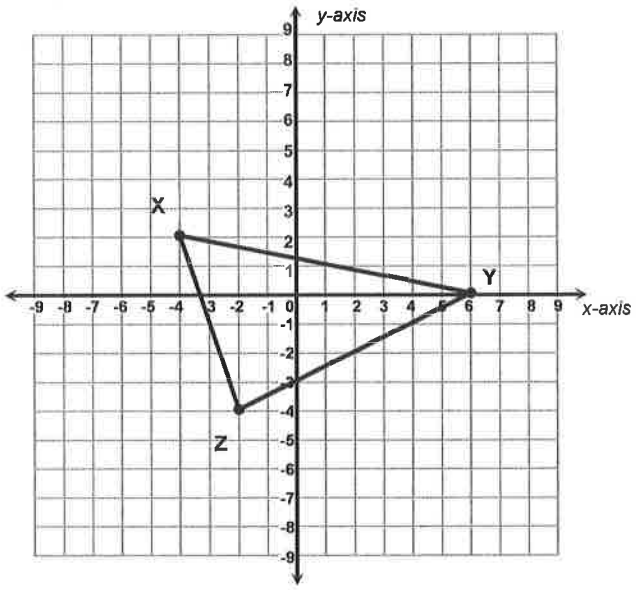

Graph the dilated image of quadrilateral MNOP using a scale factor of 3 and the origin as the center of dilation.

M: _____ M': _____

N: _____ N': _____

O: _____ O': _____

P: _____ P': _____



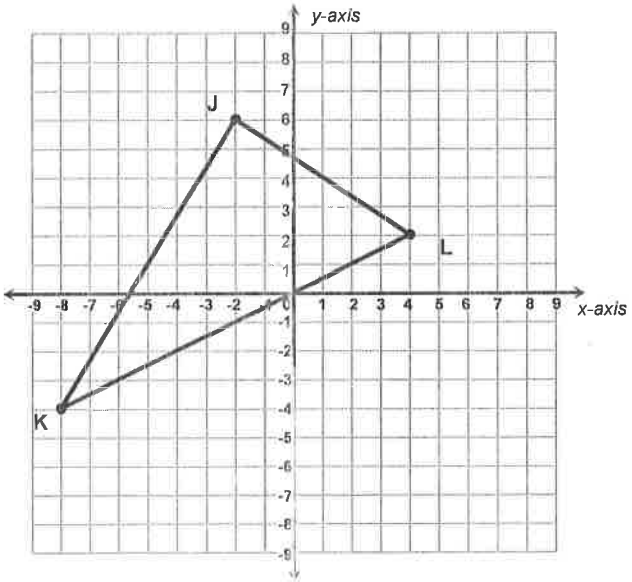

Graph the dilated image of triangle XYZ using a scale factor of 1.5 and (0,0) as the center of dilation.

X: _____ X': _____

Y: _____ Y': _____

Z: _____ Z': _____

## Example 2: Dilate a figure with a scale factor < 1 (Shrink)




Graph the dilated image of triangle JKL using a scale factor of 0.5 and (0,0) as the center of dilation.

J: _____ J': _____

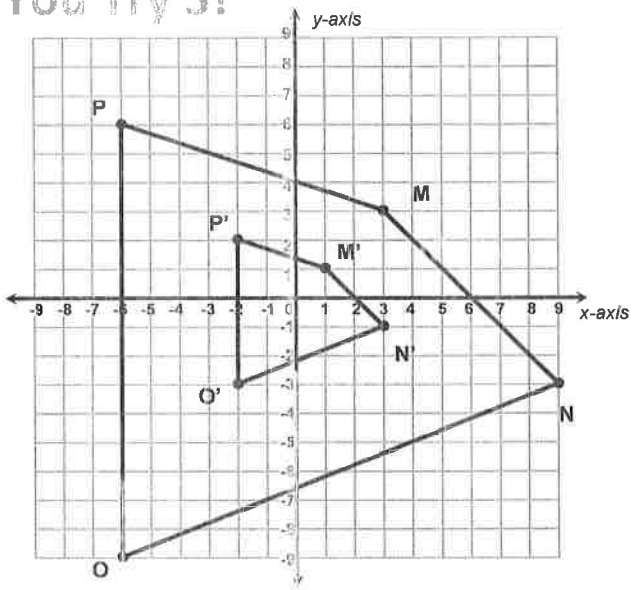
K: _____ K': _____

L: _____ L': _____

Name: _____ Date: _____

# Dilations on the Coordinate Plane

## You Try 3!




Describe the dilation of quadrilateral MNOP, using the origin as the center.

_____

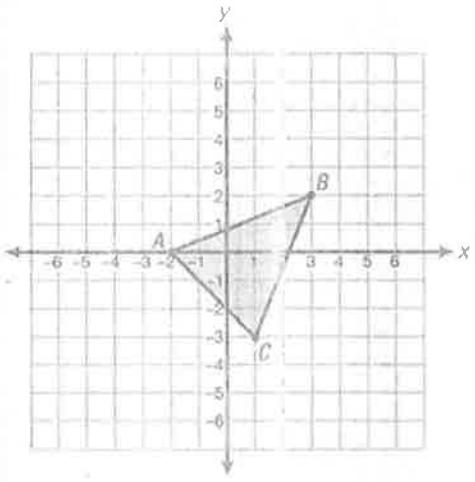
Given the coordinates for each set of vertices, choose the appropriate transformation.

| Triangle DEF | Triangle D'E'F' |
|---|---|
| D: (6, 2) | D': (3, 1) |
| E: (-1, 4) | E': (-4, 3) |
| F: (-6, -3) | F': (-9, -4) |

**A** Dilation with a scale factor of 0.5
**B** Dilation with a scale factor of 2
**C** Translation 3 units to the left, 1 unit down
**D** Translation 3 units to the right, 1 unit down

## Sample Test Question:

What set of coordinates will provide the vertices of $\triangle ABC$ after a dilation with a scale factor of 2?




**A** $A'(0,2)$, $B'(5,4)$, $C'(3,-1)$
**B** $A'(-4,0)$, $B'(6,4)$, $C'(2,-6)$
**C** $A'(4,0)$, $B'(6,4)$, $C'(2,6)$
**D** $A'(-4,-2)$, $B'(1,0)$, $C'(-1,-5)$