# Dilations Activity Sheet

NAME_____

## Part I. Exploring Dilation

For all figures on the coordinate planes below, use a straightedge to draw rays that extend from the center of dilation through each of vertices on the given figures. Dilate the figures following the directions in the table. Record the new coordinates and make observations about the dilation that you made.

1. **Center of Dilation (0,0)**

Copy Segment AB onto patty paper. Then place A on top of B and extend the line along the ray.  Repeat process for each vertex.
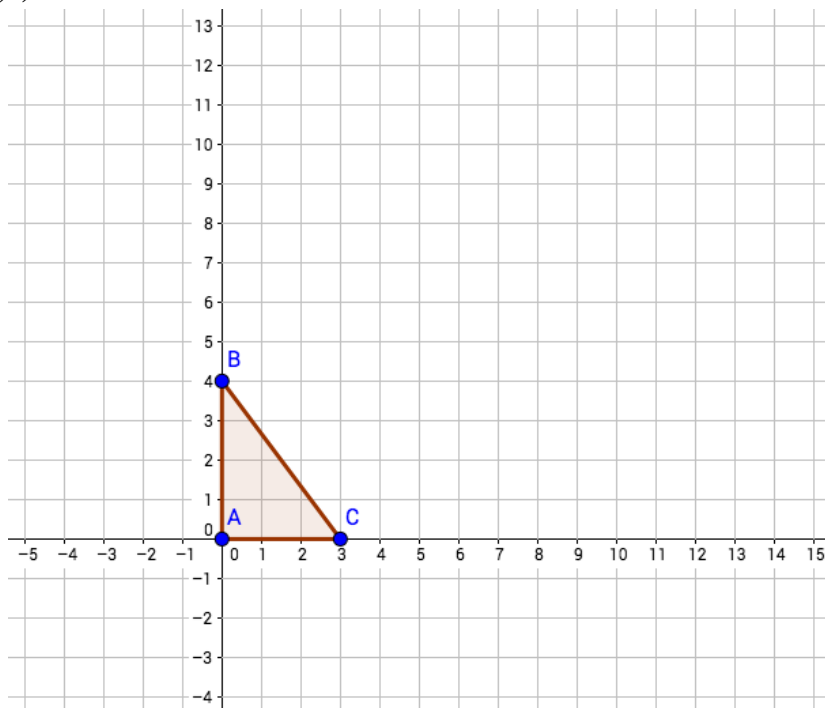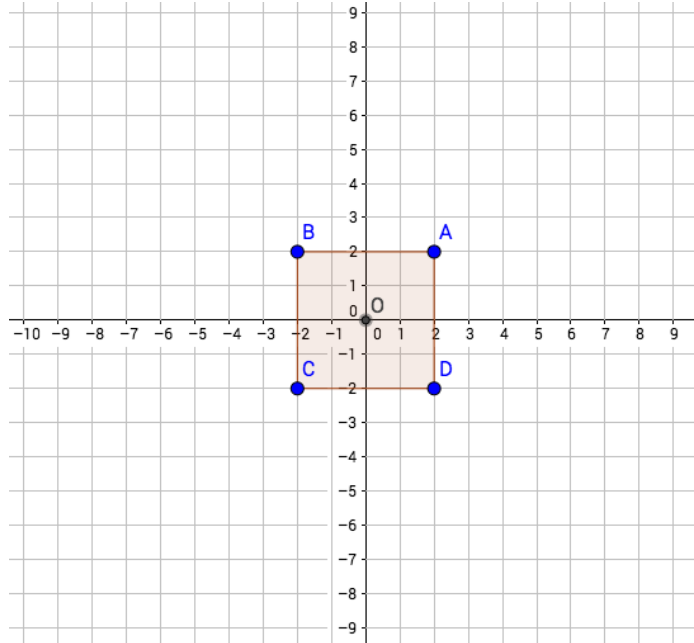


| ORIGINAL COORDINATES | DILATION | NEW COORDINATES |
|---|---|---|
| A: (0 , 0)<br>B: (0 , 4)<br>C: (3 , 0) | Scale Factor of 2 | $A^I$: (    ,    )<br>$B^I$: (    ,    )<br>$C^I$: (    ,    ) |
| A: (0 , 0)<br>B: (0 , 4)<br>C: (3 , 0) | Scale Factor of 3 | $A^{II}$: (    ,    )<br>$B^{II}$: (    ,    )<br>$C^{II}$: (    ,    ) |

Observations:

2. **Center of Dilation (0,0)**

Draw a ray extending through OA. Copy Line Segment OA onto patty paper. Then place Point O on top of A and extend the line OA. Repeat process for each vertex.
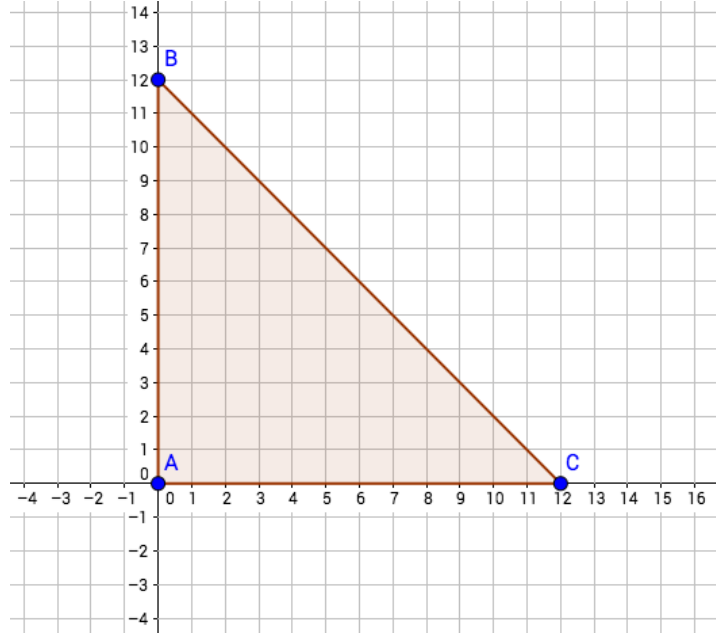
| ORIGINAL COORDINATES | DILATION | NEW COORDINATES |
|---|---|---|
| A: ( 2 , 2) <br> B: (-2 , 2) <br> C: (-2 , -2) <br> D: (2, -2) | Scale Factor of 2 | $A^I$: ( , ) <br> $B^I$: ( , ) <br> $C^I$: ( , ) <br> $D^I$: ( , ) |
| A: ( 2 , 2) <br> B: (-2 , 2) <br> C: (-2 , -2) <br> D: (2 , -2) | Scale Factor of 3 | $A^{II}$: ( , ) <br> $B^{II}$: ( , ) <br> $C^{II}$: ( , ) <br> $D^{II}$: ( , ) |

Observations:

3. **Center of Dilation (0,0)**

Copy Line Segment AB onto patty paper or use the units on the axis. Reduce the line segment by each given scale factor. Repeat the process for each line segment.



| Original Coordinates | Dilation | New coordinates |
|---|---|---|
| A: (0,0)<br>B: (0,12)<br>C: (12,0) | Scale factor of ½ | $A^I$: ( , )<br>$B^I$: ( , )<br>$C^I$: ( , ) |
| A: (0,0)<br>B: (0,12)<br>C: (12,0) | Scale factor of ⅓ | $A^{II}$: ( , )<br>$B^{II}$: ( , )<br>$C^{II}$: ( , ) |
| A: (0,0)<br>B: (0,12)<br>C: (12,0) | Scale factor of ¼ | $A^{III}$: ( , )<br>$B^{III}$: ( , )<br>$C^{III}$: ( , ) |

Observations:

4.      Using what you have noticed in this activity, what general statements can you provide about dilations? Provide at least three statements.

1.



2.



3.