Geometry (G-SRT.1)
Unit 2: Applying Dilations #2 (IC2)

Name: _____
Date: _____ Period: _____

Concept 1. Using the described dilation, determine the location of the missing point.

Think backwards:
1) From H to F is 4 units
2) 4 units divided by 4 is 1.
What letter is 1 away from H?

Dilation

Pre-image Image

a) $D_{O,3}(B)=(\text{G})$ b) $D_{O,-2}(H)=(\text{C})$ c) $D_{H,4}(\text{B})=(F)$

Center Scale factor (n) -3 units from O

Strategy: 1. Determine the distance from center of dilation to pre-image.
2. Scale the distance.
3. Locate the image the corresponding distance and direction from the center.

From O to B is -1
Then dilate -1 by 3 = -3

Concept 2. What happens when the center of dilation is a vertex of the shape?

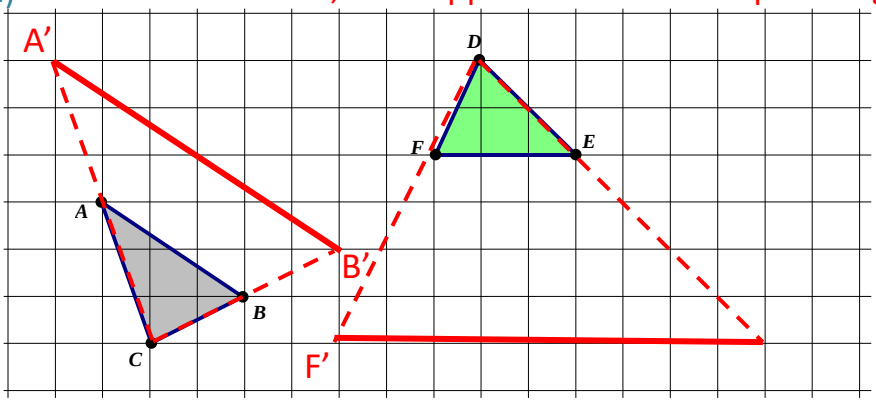
The shape doesn't move, it is just enlarged or reduced.

(Imagine that the vertex is the origin)

If n>0, then same direction as pre-image
If n<0, then opposite direction as pre-image

a) Dilate ΔABC from C using a scale factor of 2
$D_{C,2}(\Delta ABC)$

b) Dilate ΔDEF from D using a scale factor of 3
$D_{D,3}(\Delta DEF)$



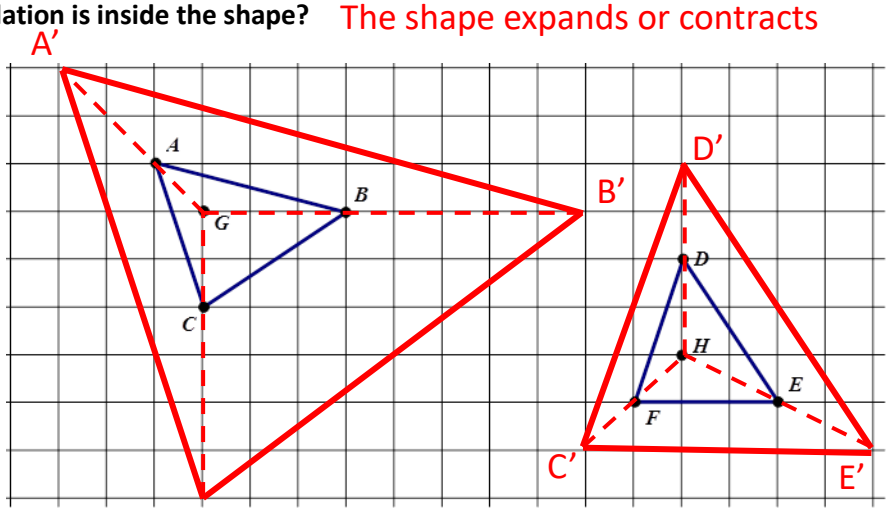
Concept 3. What happens when the center of dilation is inside the shape?

(Imagine it's the origin)

The shape expands or contracts

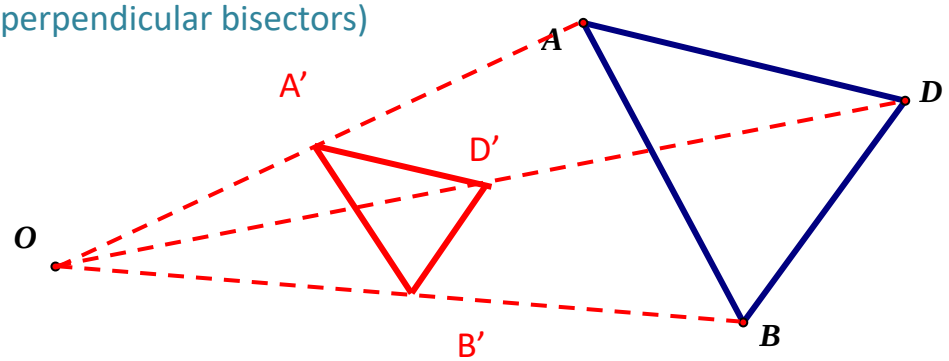
a) Dilate ΔABC from G using a scale factor of 3
$D_{G,3}(\Delta ABC)$

b) Dilate ΔDEF from H using a scale factor of 2
$D_{H,2}(\Delta DEF)$



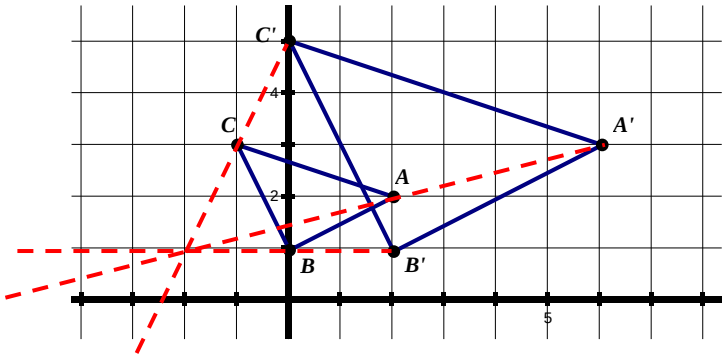
Review. Use a compass and a straightedge to construct the following dilations.

$D_{O,\frac{1}{2}}(\Delta ADB)$ (Construct perpendicular bisectors)



Review. Work backwards to find the center of dilation, and also determine the scale factor.

a) Center (__-2__ , __1__) Scale Factor = __2__



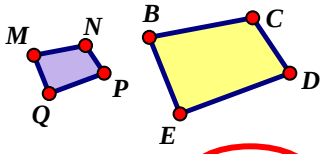
Review. Determine whether the following are stretch or dilation transformations.

a) $H(x,y) \dashrightarrow (2x,5y)$

x and y coordinates not changed by the same amount.

(Stretch) or Dilation

b)



Stretch or (Dilation)

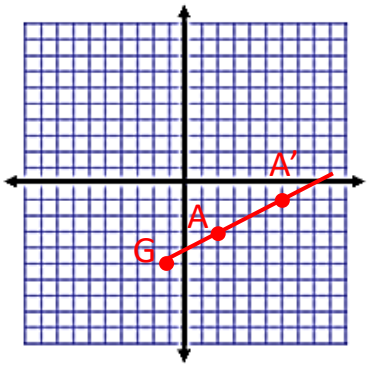
Would really need more evidence to confirm.

Concept 4. Find the location of an image.

a) Center of dilation is G. G(-1,-5) A(2,-3) n=2
Determine A'.

- Use slope/rise over run movement to help you.
- n = 2 means two slope/rise over run moves from center.

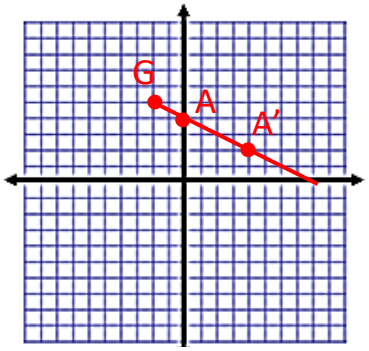
A' (5, -1)



b) Center of dilation is G. G(-2,5) A(0,4) n=3
Determine A'

- n = 3 means three slope/rise over run moves from center.

A' (4,2)



c) Center of dilation is B. B (3,-4) C(-9,0) n = $-\frac{1}{2}$

Determine C'

- Slope is -4/12 → half as far → -2/6 but opposite direction since negative

C' (9,-6)