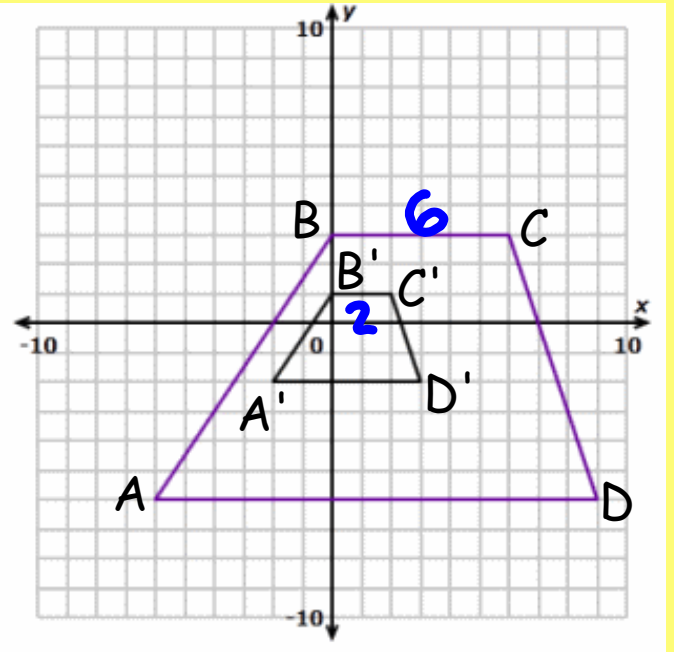
3/3/20 - Warm Up Problem

Is the dilation on the graph an enlargement or a reduction?

Reduction

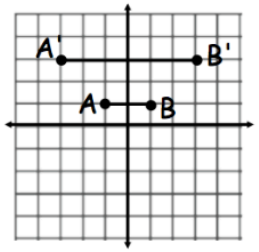
What is the scale factor?

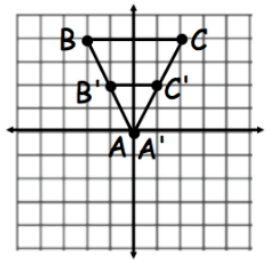
$\frac{2}{6} = \frac{1}{3}$

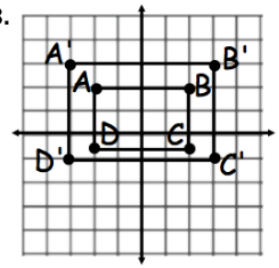


DILATIONS AND SCALE FACTOR

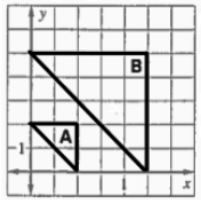
Determine whether the dilation is an enlargement or a reduction. Then, find its scale factor.

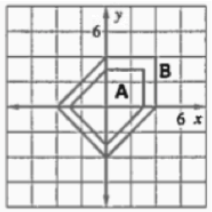
1. 

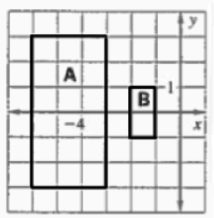
2. 

3. 

Determine whether the dilation from Figure A to Figure B is a reduction or an enlargement. Then, find its scale factor.

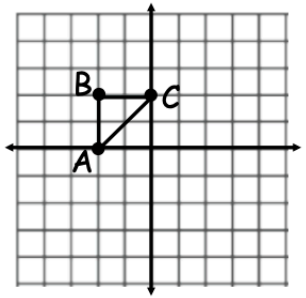
4. 

5. 

6. 

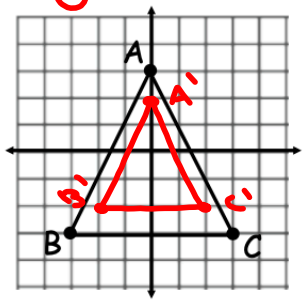
Draw the dilation of each figure according to the given rule.

7. $D_2(\Delta ABC)$



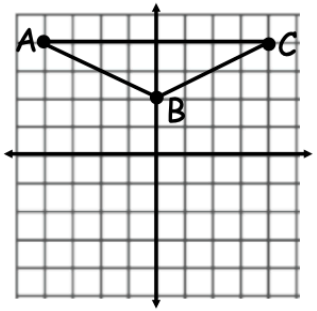
A (-2,0)
B (-2,2)
C (0,2)

8. $D_{\frac{2}{3}}(\Delta ABC)$



A (0,3) $\cdot\frac{2}{3}$ = (0, 2)
B (-3, -3) $\cdot\frac{2}{3}$ = (-2, -2)
C (3, -3) $\cdot\frac{2}{3}$ = (2, -2)

9. $D_{\frac{1}{2}}(\Delta ABC)$



A (-4, 4)
B (0,2)
C (4, 4)

Concept 22 - Similarity Transformations

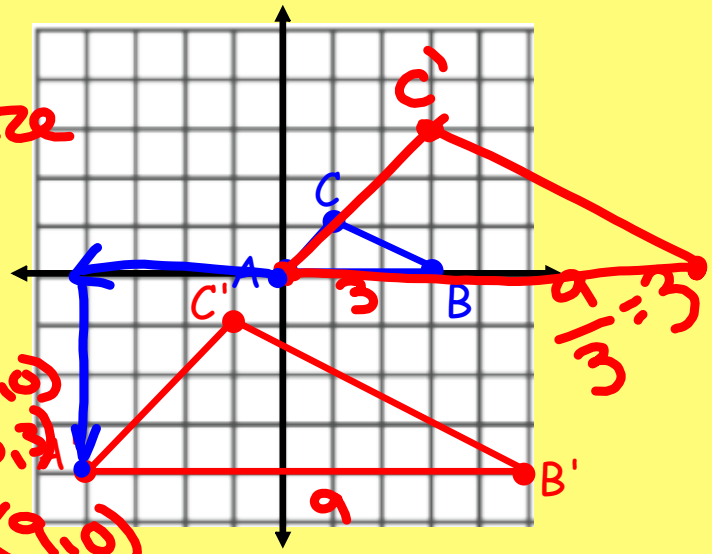
Goal: write similarity transformations

What does similar mean?

Same shape, different size

What transformation creates similar figures?

Dilation



A(0,0) x 3 = (0,0)
C(1,1) x 3 = (3,3)
B(3,0) x 3 = (9,0)

Similarity Transformation: a composition of a dilation and one or more rigid motions

dilation x3
translation 4 right 1 down

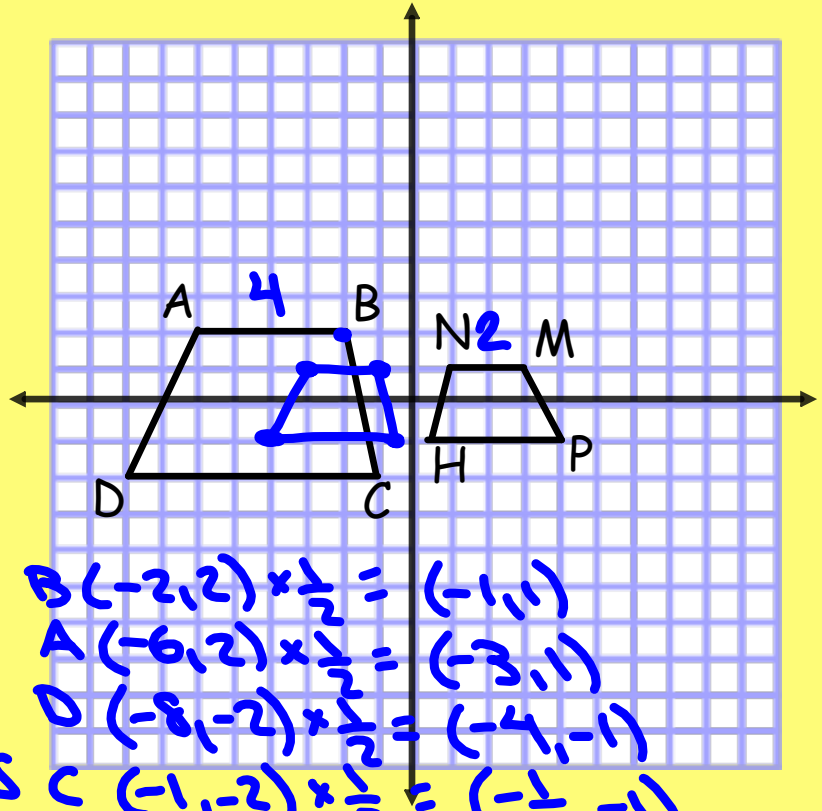
- you can prove two shapes are similar by finding a similarity transformation that maps one onto the other

Write a Similarity Transformation

Write a composition of transformations to map ABCD to MNHP.

Step 1: Dilate the figures to be the same size SF: $\frac{2}{4} = \frac{1}{2}$

Step 2: Move one figure onto the other using translations, rotations, and reflections

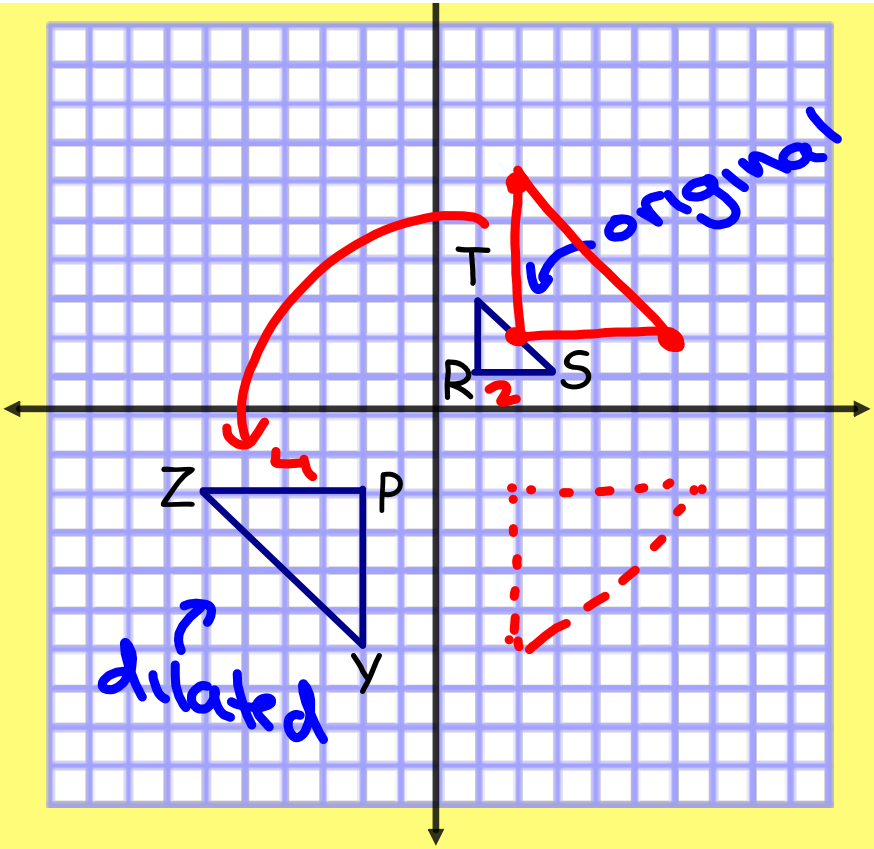


B $(-2,2) \times \frac{1}{2} = (-1,1)$
A $(-6,2) \times \frac{1}{2} = (-3,1)$
D $(-8,-2) \times \frac{1}{2} = (-4,-1)$
C $(-1,-2) \times \frac{1}{2} = (-\frac{1}{2},-1)$

dilate $\times \frac{1}{2}$
reflect over y-axis

Write a composition of transformations to map ΔRST onto ΔPYZ.

dilate x 2
rotate 180°



Assignment:

Concept 22 Worksheet (back)

SIMILARITY TRANSFORMATIONS

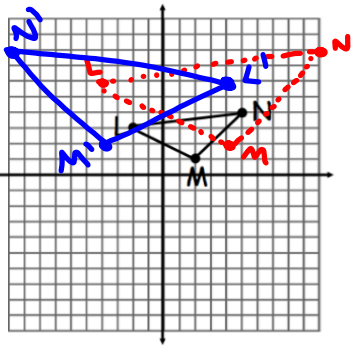
Sketch the image of ΔLMN for each of the following composition of transformations.

10. $(R_{y\text{-axis}} \circ D_2)(\Delta LMN)$

L (-2, 3) (-4, 6)

M (2, 1) (4, 2)

N (5, 4) (10, 8)

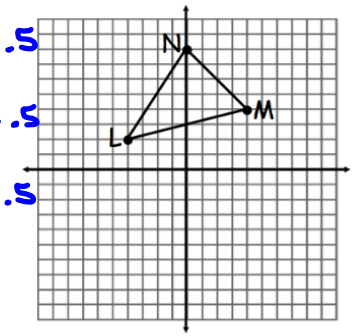


11. $(r_{(180°, O)} \circ D_{0.5})(\Delta ABC)$

L (-4, 2) (-2, 1)

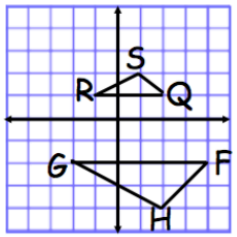
M (4, 4) (2, 2)

N (0, 8) (0, 4)

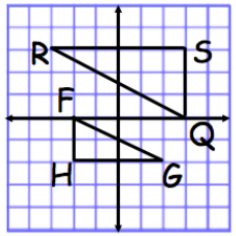


For each graph, describe the composition of transformations that maps ΔFGH to ΔQRS.

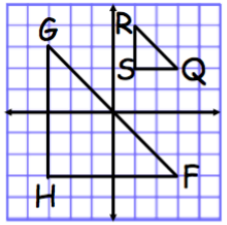
12.



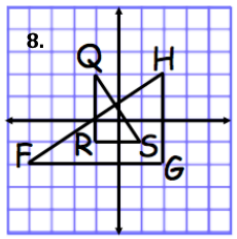
13.



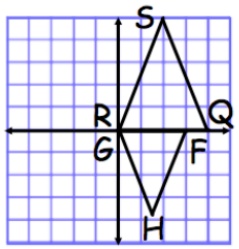
14.



15.



16.



17.