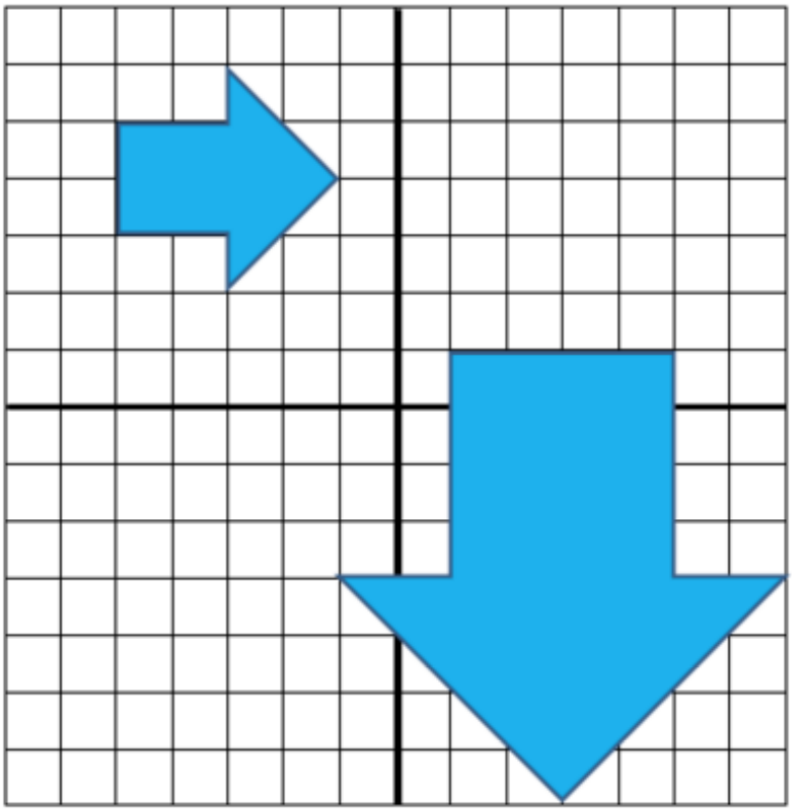
Similarity Formative Assessment 1 - Are They Similar?	
Link to Formative Assessment: https://www.illustrativemathematics.org/content-standards/8/G/A/4/tasks/1946 (Illustrative Math Site)	
Cluster & Content Standards *What content standards can be addressed by this formative assessment?* 8.G.4 - Use transformations to define similarity: ● ~~Verify experimentally the properties of dilations that create similar figures~~ ● ~~Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotation, reflections, translations, and dilations~~ ● Given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them	**Mathematical Practice Standards** *What practice standards can be addressed by this formative assessment?* 1. Make sense of problems and persevere in solving them. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics.
Learning Targets *What learning targets will be assessed?* ● Students will apply properties of transformations to determine if an appropriate sequence exists to prove similarity between shapes. ● Students will use tools (protractor, patty paper, rules, etc.) to verify properties of shapes to determine similarity.	
Timing: During or After Instruction/Tasks	
Anticipated Solutions: See Illustrative Mathematics document for several solutions and strategies	

Similarity Formative Assessment 1 - Are They Similar?

Determine, using rotations, translations, reflections, and/or dilations, whether the two polygons below are similar.

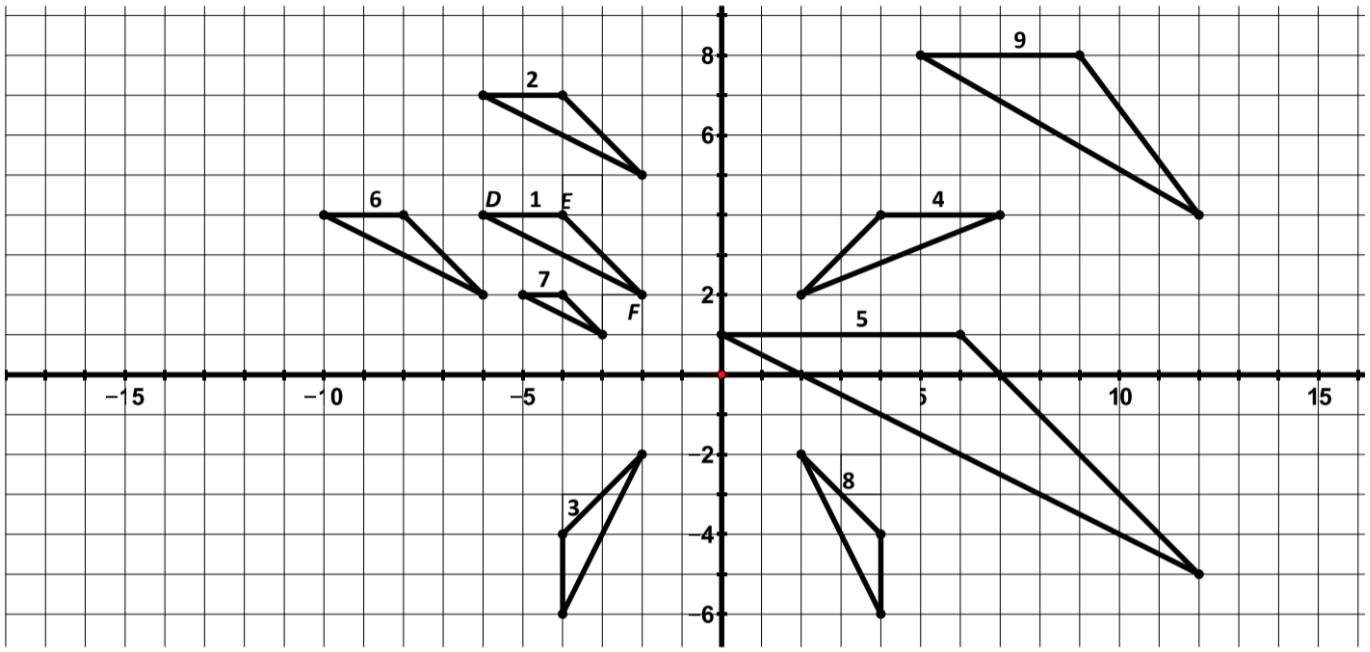


The intersection of the dark lines on the coordinate plane represents the origin (0,0) in the coordinate plane.

Similarity Formative Assessment 2 - Similar or Congruent?	
Cluster & Content Standards *What content standards can be addressed by this formative assessment?* 8.G.3 - Describe the effect of dilations about the origin, translations, rotation about the origin in 90 degree increments, and reflections across the x-axis and y-axis on two dimensional figures using coordinates	**Mathematical Practice Standards** *What practice standards can be addressed by this formative assessment?* 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 7. Look for and make use of structure.
Learning Targets *What learning targets will be assessed?* ● Students will determine the difference between similarity and congruence transformations ● Students will map similar and congruent figures onto each other using sequences of transformations	
Timing: After teaching all transformations to determine level of mastery	
Solutions: Congruent: 2, 3, 6, 8 Similar: 5, 7 **Possible Conceptions:** - Thinking that orientation matters when looking at congruence - Only considering lengths of horizontal sides when looking at congruence - Confusing reflections, rotations, translations, and dilations when sequencing the transformations	

Similarity Formative Assessment 2 - Similar or Congruent?

Directions: Determine whether the triangles pictured below are **congruent** to ΔDEF, **similar** to ΔDEF, or neither congruent nor similar to ΔDEF. Describe a sequence of transformations that support your claims.



Similarity Formative Assessment 3 - Exploring Dilation and Scale Factor	
Cluster & Content Standards *What content standards can be addressed by this formative assessment?* 8.G.3 - Describe the effect of dilations about the origin, ~~translations, rotation about the origin in 90 degree increments, and reflections~~ across the x-axis and y-axis on two dimensional figures using coordinates 8.G.4 - Use transformations to define similarity: ● Verify experimentally the properties of dilations that create similar figures ● Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotation, reflections, translations, and dilations ● ~~Given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them~~	**Mathematical Practice Standards** *What practice standards can be addressed by this formative assessment?* 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 6. Attend to precision.
Learning Targets *What learning targets will be assessed?* ● Students will understand the relationship between scale factor and dilation on the coordinate plane. ● Students will calculate image points after dilations.	
Timing: During or After Instruction/Tasks	
Correct Answers: 1. No. Sample explanation: The scale factor isn't consistent for all coordinates. For the x-coordinates, A and B have a scale factor of 2, but C has a scale factor of 10/4 = 2.5. 2. The error is in the x-coordinate of C. 3 • ½ = 1.5, not 1. In a dilation, every coordinate must have the same relationship with the scale factor, and point C does not. 3. The scale factor is 3, as that is the ratio of the lengths of sides Q'R' and QR. 9/3 = 3 4. Lack of precision in calculations, Misunderstanding preimage and image in dilations	

Similarity Formative - Exploring Dilation and Scale Factor

1. Triangle *ABC* with coordinates *A* (2, 4); *B* (2, 2); and *C* (4, 2) is transformed with the new coordinates of triangle *A'B'C'* as follows: *A*' (4, 10); *B*' (4, 4); and *C*' (10, 4). Is this transformation a dilation? Explain your answer using words or mathematical representation.

2. John claims that figure *A'B'C'D'* is a dilation with a scale factor of one-half. He made an error when listing the coordinates of the points. Identify the error and make the appropriate correction. Explain your reasoning using words or mathematical representation.

I.	*A* (4, 2)	*A* ' (2, 1)
II.	*D* (-6, -4)	*D* ' (-3, -2)
III.	*C* (3, -8)	*C* ' (1, -4)
IV.	*B* (-6, 1)	*B* ' (-3, 0.5)

3. The image of figure *QRST* is figure *Q'R'S'T'*. What is the scale factor for this dilation? Explain your answer using words or mathematical representation.