|  |
| --- |
| **Similarity Formative Assessment 1 - Are They Similar?** |
| **Link to Formative Assessment:** [**https://www.illustrativemathematics.org/content-standards/8/G/A/4/tasks/1946**](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?**



|  |
| --- |
| **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?**

****

|  |
| --- |
| **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.

1. *A* (4, 2) *A* ʹ (2, 1)
2. *D* (-6, -4) *D* ʹ (-3, -2)
3. *C* (3, -8) *C* ʹ (1, -4)
4. *B* (-6, 1) *B* ʹ (-3, 0.5)
	* + 1. 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.