

**Common Core State Standards for Mathematics**

**Domain: Similarity, Right Triangles and Trigonometry**

**Similarity Transformations (understand similarity in terms of similarity transformations) (G-SRT)**

**High School**

Score 4.0	In addition to Score 3.0, in-depth inferences and applications that go beyond instruction to the standard. The student will:		Example Activities
	3.5	In addition to score 3.0 performance, in-depth inferences and applications with partial success.	
Score 3.0	<p><b>The student will:</b></p> <ul style="list-style-type: none"> <li>• verify experimentally that a dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged (G-SRT.1a)</li> <li>• verify experimentally that a dilation of a line segment is longer or shorter in the ratio given by the scale factor (G-SRT.1b)</li> <li>• explain, using similarity transformations, the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides (G-SRT.2)</li> <li>• establish the AA criterion for two triangles to be similar using the properties of similarity transformations (G-SRT.3)</li> </ul> <p><b>The student exhibits no major errors or omissions.</b></p>		<p>Using graph paper or a dynamic geometry software program, have students plot points A(-2,2), B(-4, -2), C(2,-2), D(4,3). Dilate the quadrilateral given the center at (0,0) and a scale factor of two. Have students verify that the line containing segment AD is parallel to the line containing segment A'D', the line containing segment CD is parallel to the line containing segment C'D', etc. Also verify that segment A'D' is twice as long as segment AD, etc. Repeat this activity with different geometric shapes such as triangles, and other quadrilaterals. (G-SRT.1a/b)</p> <p>Using graph paper or a dynamic geometry software program, have students plot points A(-6,-4), B(4,2), C(-4,8). Dilate by a given scale factor. Verify that A, B, A', and B' are collinear. (G-SRT.1a)</p> <p>Using a dynamic geometry software program, have students draw a triangle and perform various transformations including dilation. Students will measure angles and ratios of line segments to explain the meaning of similarity.</p> <p>Using a dynamic geometry software program, have students draw a triangle. Students then create a new triangle with two angles congruent to the original triangle. They then measure ratios of corresponding sides to show the triangles are similar. (G-SRT.3)</p>
	2.5	No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content	
Score 2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes as the student will:</b></p> <ul style="list-style-type: none"> <li>• recognize or recall specific vocabulary, such as:             <ul style="list-style-type: none"> <li>○ similarity, dilation, scale factor, proportionality</li> </ul> </li> <li>• perform basic processes, such as:             <ul style="list-style-type: none"> <li>○ determine if two figures are similar using transformations (G.SRT.2)</li> </ul> </li> </ul> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>		<p><u>Simultaneous Response Method</u> – Students will use a simultaneous response system (e.g., white boards, clickers, socrative) as the teacher displays two figures. The students will use transformations to determine if they will vote true or false as to whether the two figures are similar. The teacher will provide immediate specific feedback to the students as they respond.</p>
Score 1.0	1.5	Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content	
	With help, a partial understanding of some of the simpler details and processes and some of the more		

	<b>complex ideas and processes.</b>	
	<b>0.5</b> With help, a partial understanding of the 2.0 content but not the 3.0 content	
<b>Score 0.0</b>	<b>Even with help, no understanding or skill demonstrated.</b>	