

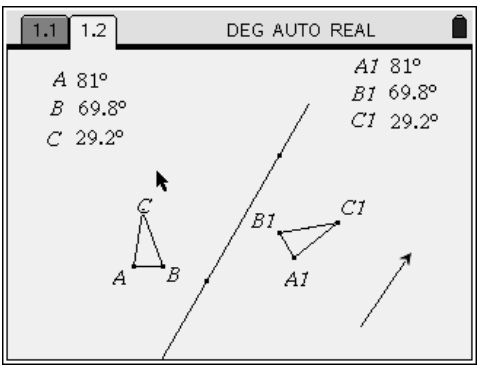
## Teacher Notes

G.G.55 Investigate, justify, and apply the properties that remain invariant under glide reflections. ANGLE MEASURE

### Lesson Launcher Objective:

- 1) Discover that angle measure is preserved under a glide reflection.

Procedure:

<p>The student opens the .tns document GLIDRFL3</p>  <p>The screenshot shows a geometry software window with a menu bar (1.1, 1.2, DEG, AUTO, REAL) and a toolbar. The main area displays two triangles, <math>\triangle ABC</math> and <math>\triangle A_1B_1C_1</math>, separated by a glide reflection line. The angles of <math>\triangle ABC</math> are listed as <math>A = 81^\circ</math>, <math>B = 69.8^\circ</math>, and <math>C = 29.2^\circ</math>. The angles of <math>\triangle A_1B_1C_1</math> are listed as <math>A_1 = 81^\circ</math>, <math>B_1 = 69.8^\circ</math>, and <math>C_1 = 29.2^\circ</math>. The triangles are congruent, and the glide reflection line is shown as a dashed line with arrows indicating the direction of the glide.</p>	<p><math>\triangle A_1B_1C_1</math> is the image of <math>\triangle ABC</math> under a glide reflection.</p> <p>The measures of the angles of the triangles have been indicated.</p> <p>The student will explore the figure by dragging the vertices of the <math>\triangle ABC</math></p>
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- 1.) Select grab and drag point A.

What is changing? The measures of the angles of the triangles.

What is remaining the same? The pre-image angle and image angle always have the same measure.

- 2.) Select grab and drag point B.

What is changing? The measures of the angles of the triangles.

What is remaining the same? The pre-image angle and image angle always have the same measure

3) Select, grab and drag point C. As you move point C stop and record 5 successive trials by entering the measures of the angles in the table below.

Trial #	$\angle ABC$	$\angle A_1B_1C_1$	$\angle BCA$	$\angle B_1C_1A_1$	$\angle CAB$	$\angle C_1A_1B_1$
1						
2						
3						
4						
5						

Answers will vary from student to student.

4) What seems to be true about the measures of  $\angle ABC$  and  $\angle A_1B_1C_1$  ? They are always equal.

5) Name two other pairs of angles that demonstrate this same property.

$\angle BCA$  and  $\angle B_1C_1A_1$ ,  $\angle CAB$  and  $\angle C_1A_1B_1$

6) Under the transformation glide reflection is angle measure preserved? yes

7) In your own words explain what it means when a property is preserved.

Answers will vary.