

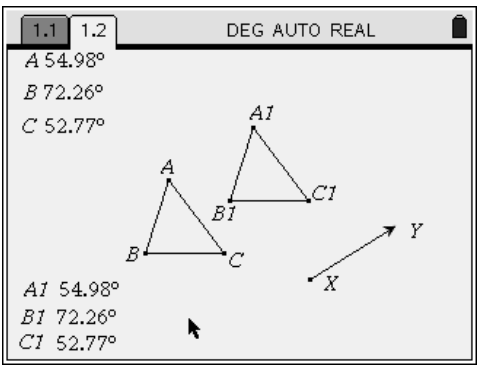
Teacher Notes

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

Lesson Launcher Objective:

1) Discover that angle measure is preserved under a translation.

Procedure:

<p>The student opens the .tns document TRNSLA2</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 workspace contains two triangles, $\triangle ABC$ and $\triangle A_1B_1C_1$, and a line segment XY. The angles of $\triangle ABC$ are listed as $A = 54.98^\circ$, $B = 72.26^\circ$, and $C = 52.77^\circ$. The angles of $\triangle A_1B_1C_1$ are listed as $A_1 = 54.98^\circ$, $B_1 = 72.26^\circ$, and $C_1 = 52.77^\circ$. A mouse cursor is visible over the workspace.</p>	<p>$\triangle A_1B_1C_1$ is the image of $\triangle ABC$ under a translation.</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 $\triangle ABC$</p>
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1.) Select, grab and drag points A, B, C.

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 segment XY.

What is changing? The position of XY

What is remaining the same? Everything

3.) Select grab and drag point X or point Y.

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 A, B, C, X or Y. As you move the point, 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 a translation is angle measure preserved? yes

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

Answers will vary.