

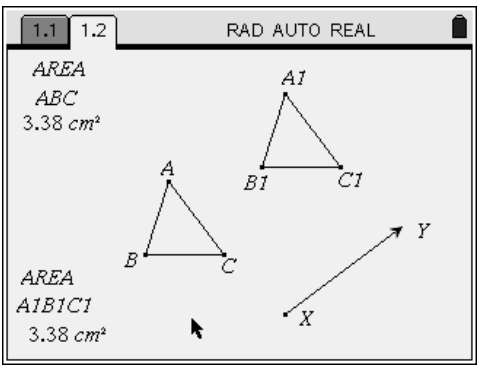
Teacher Notes

G.G.55 Investigate, justify, and apply the properties that remain invariant under translations. AREA

Lesson Launcher Objective:

- 1) Discover that area is preserved under a translation.

Procedure:

<p>The student opens the .tns document TRNSLA3</p>  <p>The screenshot shows a software window titled '1.1 1.2 RAD AUTO REAL'. On the left, there are two text boxes: the top one says 'AREA ABC 3.38 cm²' and the bottom one says 'AREA A1B1C1 3.38 cm²'. In the center, there are two triangles. The first triangle has vertices labeled A, B, and C. The second triangle has vertices labeled A1, B1, and C1. Below the triangles is a coordinate plane with a horizontal axis labeled 'X' and a vertical axis labeled 'Y'. A mouse cursor is visible near the origin.</p>	<p>$\Delta A_1B_1C_1$ is the image of ΔABC under a translation.</p> <p>The measures of the areas of the triangles have been indicated.</p> <p>The student will explore the figure by dragging the vertices of the ΔABC</p>
--	---

- 1.) Select grab and drag point A.

What is changing? The areas of the triangles.

What is remaining the same? The area of the pre-image and image are always the same.

- 2.) Select grab and drag point B.

What is changing? The areas of the triangles.

What is remaining the same? The area of the pre-image and image are always the same.

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 areas in the table below.

Trial Number	Area of $\triangle ABC$	Area of $\triangle A_1B_1C_1$
1		
2		
3		
4		
5		

Answers will vary student to student.

- 4) What seems to be true about the areas of $\triangle ABC$ and $\triangle A_1B_1C_1$? They are always equal.
- 5) Under a translation is area preserved? yes
- 6) In your own words explain what it means when a property is preserved.

Answers will vary.