

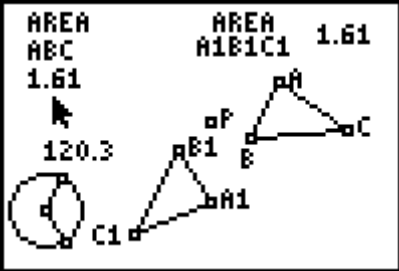
Teacher Notes

G.G.55 Investigate, justify, and apply the properties that remain invariant under Rotation about a point. AREA

Lesson Launcher Objective:

- 1) Discover that area is preserved under a rotation about a point.

Procedure:

<p>The student opens Cabri Jr. and the APPVAR ROTATE3</p>	<p>$\Delta A_1B_1C_1$ is the image of ΔABC under a rotation about point P.</p>
 <p>The screenshot shows a software interface with two triangles, ΔABC and $\Delta A_1B_1C_1$, and a point P. The area of ΔABC is 1.61, and the area of $\Delta A_1B_1C_1$ is also 1.61. A mouse cursor is positioned over the area of ΔABC. The angle at vertex C is labeled as 120.3. The vertices are labeled A, B, C and A1, B1, C1. A point P is located between the two triangles.</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 ΔABC</p>

- 1.) Select grab and drag either radius point.

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

What is remaining the same? The area of the pre-image triangle and the area of the image triangle angle area always equal.

- 2.) Select grab and drag point A, B or C.

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

What is remaining the same? The area of the pre-image triangle and the area of the image triangle angle area always equal.

3) Select, grab and drag point A, B, C or any radius point then stop and record 5 successive trials by entering the distances 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 the transformation rotation about a point is area preserved? yes
- 6) In your own words explain what it means when a property is preserved.

Answers will vary.