Lesson 8.2 — Student Notes

All Circles Are Similar

Write your answers in your own words. After consolidation and discussion, revise your notes as needed.

TWO EQUIVALENT DEFINITIONS OF SIMILARITY — *both describe the same relationship*

Unit 6 definition:	**Transformations definition:**

Why the transformations definition is more natural for circles — in one sentence:

CLAIM AND PROOF — *any two circles are similar*

Claim: Any two circles are similar.

Proof — write the two-step argument in your own words:

WHY THIS WORKS FOR CIRCLES BUT NOT TRIANGLES OR RECTANGLES

A circle is determined by ___ free parameter(s): _____. A rectangle is determined by ___ free parameter(s): _____. A triangle is determined by ___ free parameter(s): _____.

In your own words: why does the number of free parameters matter for similarity?

Thinking Through Geometry © 2026 by Jason Shea is licensed under CC BY-NC-SA 4.0. To view a copy of this license, visit https://creativecommons.org/licenses/by-nc-sa/4.0/

TWO CONSEQUENCES OF ALL CIRCLES BEING SIMILAR — *what this lets us conclude*

Consequence 1 — the universality of π:

SYMMETRY OF A CIRCLE — *why we didn't need to rotate or reflect*

Rotating a circle about its center by any angle produces:

Reflecting a circle across any line through its center produces:

How many lines of symmetry does a circle have? _____

Thinking Through Geometry © 2026 by Jason Shea is licensed under CC BY-NC-SA 4.0. To view a copy of this license, visit https://creativecommons.org/licenses/by-nc-sa/4.0/