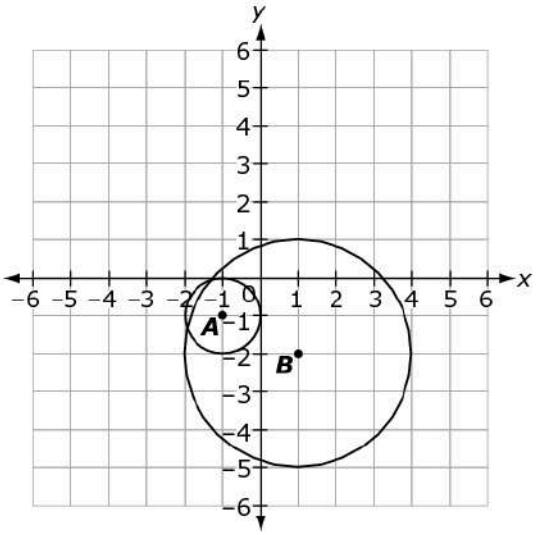
MAFS.912.G-C.1.1	Prove that all circles are similar.
Item Types	Equation Editor – May require writing an algebraic description of a transformation or giving a value. GRID – May require creating circles. Hot Text – May require dragging and dropping values or relationships to prove circles are similar. Multiple Choice – May require selecting a value or an expression from a list. Multiselect – May require selecting responses. Open Response – May require describing relationships. Table Item – May require generating tables.
Clarifications	Students will use a sequence of transformations to prove that circles are similar. Students will use the measures of different parts of a circle to determine similarity.
Assessment Limits	Items should not require the student to use the distance or midpoint formula. Items should not require the student to write an equation of a circle. Items may require the student to be familiar with using the algebraic description $(x, y) \rightarrow (x + a, y + b)$ for a translation, and $(x, y) \rightarrow (kx, ky)$ for a dilation when given the center of dilation. Items may require the student to be familiar with the algebraic description for a 90-degree rotation about the origin, $(x, y) \rightarrow (-y, x)$, for a 180-degree rotation about the origin, $(x, y) \rightarrow (-x,-y)$, and for a 270-degree rotation about the origin, $(x, y) \rightarrow (y,-x)$. Items that use more than one transformation may ask the student to write a series of algebraic descriptions. Items should not use matrices to describe transformations.
Stimulus Attributes	Circles should not be given in equation form. Items may be set in a real-world or mathematical context.
Response Attribute	Items may require the student to use or choose the correct unit of measure.
Calculator	Neutral

Sample Item	Item Type
	Equation Editor

Circle *A* has a center at $(-1, -1)$, and circle *B* has a center at $(1, -2)$.



Logan performs two transformations on circle *A* to show that circle *A* is similar to circle *B*. One of the transformations is centered at $(-1, -1)$.

What are the transformations?

$(x, y) \rightarrow$ (,)

$(x, y) \rightarrow$ (,)