MAFS.912.G-GPE.1.1	Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
Item Types	Editing Task Choice – May require choosing steps in completing the square of the standard form of a circle expression or in the derivation of an equation of a circle using the Pythagorean theorem. Equation Editor – May require constructing an equation of a circle. GRID – May require creating circles. Hot Text – May require reordering steps of a derivation. Multiple Choice – May require selecting from choices. Multiselect – May require identifying statements.
Clarifications	Students will use the Pythagorean theorem, the coordinates of a circle's center, and the circle's radius to derive the equation of a circle. Students will determine the center and radius of a circle given its equation in general form.
Assessment Limit	In items where the student has to complete the square to find the center and radius of the circle, coefficients of quadratic terms should equal one and all other terms should have integral coefficients.
Stimulus Attribute	Items may be set in a real-world or mathematical context.
Response Attribute	Items may require the student to draw a circle that matches an equation in general form.
Calculator	Neutral

Sample Item	Item Type
	Editing Task Choice

Johnny wants to find the equation of a circle with center (3, −4) and a radius of 7. He uses the argument shown.

There are three highlights in the argument to show missing words or phrases. For each highlight, click on the word or phrase that correctly fills in the blank.

Johnny's Argument

Let (x, y) be any point on the circle. Then, the horizontal distance from (x, y) to the center is ___?___. The vertical distance from (x, y) to the center is ___?___. The total distance from (x, y) to the center is the radius of the circle, 7. The ___?___ can now be used to create an equation that shows the relationship between the horizontal, vertical, and total distance of (x, y) to the center of the circle.