



Equations of Circles

Today's Standard

HSG.GPE.A1 - 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.

Cues	Notes
What is the equation of a circle?	The standard form of a circle's equation is $(x-h)^2 + (y-k)^2 = r^2$, where (h, k) is the center and r is the radius.
How do you derive a circle's equation?	To derive a circle's equation, use the Pythagorean Theorem: the distance from any point (x, y) on the circle to the center (h, k) is the radius r .
What is completing the square?	Completing the square involves rewriting a quadratic equation in the form $(x-h)^2 + (y-k)^2 = r^2$ to easily identify the circle's center and radius.
Common misconceptions about circle equations	Misconceptions include thinking the equation of a circle is linear and confusing completing the square with solving quadratic equations.

Summary

Understanding the equation of a circle and how to derive it using the Pythagorean Theorem and completing the square is crucial for solving geometric problems involving circles.