Unit 09: Polar Coordinates

Content Area: **Mathematics**
Course(s): **Generic Course**
Time Period: **Semester 1**
Length: **3 weeks**
Status: **Published**

Standards - NJCCS/CCSS

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.5	Use appropriate tools strategically.
MA.N-CN.B.4	Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.

Enduring Understandings

Polar coordinates and rectangular coordinates describe the same points in different notations.

In some cases, the polar coordinate system provides a more elegant representation than the rectangular system.

Essential Questions

What is the polar coordinate plane?

Why do we use the polar coordinate plane?

What is the benefit of converting equations from rectangular to polar?

How can we graph the "special" polar curves?

How can we find the intersection point of two graphs in the polar coordinate plane?

Knowledge and Skills

- Name points in the rectangular or polar system.
- Graph cirlces, cardiods,limacons and rose curves
- Be able to convert rectangular equations to polar equations.
- Be able to convert polar equations to rectangular equations.
- Find the intersection points between two polar curves.

Transfer Goals

Recognize and solve practical or theoretical problems involving mathematics, including those for which the solution approach is not obvious, by using mathematical reasoning and strategic thinking.

Different graphing systems allow for addressing different kinds of problems.

Resources

Precalculus: Graphical, Numerical, Algebraic 10th Edition

Desmos/Amplify

Problem-Attic

Deltamath

Geogebra