Unit 15: Conic Sections

Content Area: **Mathematics**
Course(s): **PreCalc Trig H**
Time Period: **Semester 2**
Length: **1.5 weeks**
Status: **Published**

Standards - NJCCS/CCSS

CCSS.Math.Content.HSG-GPE.A	Translate between the geometric description and the equation for a conic section
CCSS.Math.Content.HSG-GPE.A.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.
CCSS.Math.Content.HSG-GPE.A.2	Derive the equation of a parabola given a focus and directrix.
CCSS.Math.Content.HSG-GPE.A.3	Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.

Enduring Understandings

Write and interpret the equation of a circle.
Recognize, write, graph, and interpret equations of conic sections.

Essential Questions

Geometrically, what is a conic section?

What is a degenerate conic?

How can one speculate which conic an equation represents in it's general form?

How does one graph a conic section from an equation in standard form?

Knowledge and Skills

SWBAT graph a circle.

SWBAT write the equation of a circle.

SWBAT find the equation of the tangent line to a circle.

SWBAT graph an ellipse.

SWBAT write the equation of an ellipse.

SWBAT graph a hyperbola.

SWBAT write the equation of a hyperbola.

SWBAT graph a parabola.

SWBAT write the equation of a parabola.

SWBAT define circle, ellipse, hyperbola, and parabola.

Resources

Precalculus with Limits

Authors: Aufmann, Barker, Nation

Graphing Calculator

www.desmos.com

www.flipgrid.com

www.graphfree.com