Coordinate Geometry

Content Area: **Math**
Course(s): **Generic Course, Geometry CP, Geometry A, Geometry H**
Time Period: **Marking Period 4**
Length: **14/15 (H) Days**
Status: **Published**

Unit Introduction

Standards

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.B.4	Use coordinates to prove simple geometric theorems algebraically.
CCSS.Math.Content.HSG-GPE.B.5	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
CCSS.Math.Content.HSG-GPE.B.6	Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
CCSS.Math.Content.HSG-GPE.B.7	Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

Essential Questions

- How can you use coordinate geometry to prove general relationships?
- How do you find the equation of a circle in the coordinate plane?
- How do you write an equation of a line in the coordinate plane?

Content

- 1.7 - Midpoint and Distance in the Coordinate Plane
- 12.5 - Circles in the Coordinate Plane
- 12.5 - Equation of Parabola (H)
- 3.7 - Equations of Lines in the Coordinate Plane
- 3.8 - Slopes of Parallel and Perpendicular Lines
- 6.7 - Polygons in the Coordinate Plane
- 6.8 - Applying Coordinate Geometry
- 6.9 - Proofs Using Coordinate Geometry

Skills

- Find endpoint given 1 endpoint and a midpoint
- Find the center and radius of a circle
- Find the coordinates of the midpoint of a segment in the coordinate plane.
- Find the distance between two points in the coordinate plane.
- Simplifying Radicals
- To graph lines given their equations.
- To name coordinates of special figures by using their properties
- To name coordinates of special figures by using their properties
- To prove theorems using figures in the coordinate plane
- To relate slope of parallel and perpendicular lines.
- To write equations of lines.
- Use coordinates to prove simple geometric theorems algebraically.
- Use relevant vocabulary, symbols and notation.
- Write the equation of a circle
- Write the equation of a parabola