

Module Overview

In this inquiry module, students build on their work with Pythagorean Theorem to find distances. They use the rectangular coordinate system to verify geometric relationships including properties of special triangles and quadrilaterals as well as slopes of parallel and perpendicular lines. Students continue their study of quadratics by connecting the geometric and algebraic definitions of the parabola.

Essential Questions

- Why is proof important?
- What criteria are used when selecting a tool?
- What are the advantages and disadvantages of working with figures in the coordinate plane?

Student Focal Points

1. Using coordinates to prove simple geometric theorems algebraically
2. Converting between the geometric description and the equation for a conic section

Standards for Mathematical Practice

Mathematically proficient students...

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. **Construct viable arguments and critique the reasoning of others.**
4. Model with mathematics.
5. **Use appropriate tools strategically.**
6. Attend to precision.
7. Look for and make use of structure.
8. **Look for and express regularity in repeated reasoning.**

Standards for Mathematical Content

Sense-Making Concepts Standard(s)	Sense-Making Strategies Standard(s)	Sense-Making Applications/Modeling Standard(s)
	G.GPE.6	G.GPE.2 G.GPE.4 G.GPE.5 G.GPE.7

Module D - Scope & Sequence

Duration	Standard(s)	
2-3 days	G.GPE.7 G.MG.2	Lesson 1: Formulas, Perimeter and Area MP#1, 4, 6
	<p><u>Text:</u> Section 2.1 Segment Bisectors, Section 4.4 Pythagorean Theorem and Distance , Algebra Review p.299 (slope)</p> <p><u>Teacher Resource(s):</u></p> <p><u>Collaborative Activity/Task:</u> Midpoint formula derivation activity, Distance formula derivation activity, Just Plane Area collaborative activity, Density Guided Practice</p> <p><u>Tools/Technology:</u></p>	
2 days	G.GPE.6	Lesson 2: Segment Divisions MP#1, 4, 7
	<p><u>Text:</u> no text section for this lesson</p> <p><u>Teacher Resource(s):</u></p> <p><u>Collaborative Activity/Task:</u> Guided Practice on segment ratios and coordinates, Partner activity, Exit slip idea</p> <p><u>Tools/Technology:</u> Graph paper, GeoGebra</p>	
3 days	G.GPE.5	Lesson 3: Linear Equations: Parallel and Perpendicular MP#3, 7
	<p><u>Text:</u> no text section for this lesson</p> <p><u>Teacher Resource(s):</u></p> <p><u>Collaborative Activity/Task:</u> Proofs of slopes for parallel and perpendicular lines, Collaborative activity, Exit slip idea</p> <p><u>Tools/Technology:</u> GeoGebra</p>	
3-4 days	G.GPE.4	Lesson 4: Coordinate Proof MP#1, 4, 5, 6
	<p><u>Text:</u> no text section for this lesson</p> <p><u>Teacher Resource(s):</u></p> <p><u>Collaborative Activity/Task:</u> Proving shapes are parallelograms or rectangles, Collaborative activity</p> <p><u>Tools/Technology:</u></p>	
2-3 days	G.GPE.2 G.GPE.4	Lesson 5: Non-Linear Equations: Parabola and Circle MP #3, 5, 8
	<p><u>Text:</u> no text section for this lesson</p> <p><u>Teacher Resource(s):</u></p> <p><u>Collaborative Activity/Task:</u> Creating a Parabola class activity, Deriving Parabola Equation class activity, Comparing Parabolas partner activity</p> <p><u>Tools/Technology:</u> Construction tools, GeoGebra</p>	
2 days		Module D Review Module D Test (common assessment)

Total Days: 16 – 19 days (2 flex days)

