

## Common Core Standards - Resource Page

The resources below have been created to assist teachers' understanding and to aid instruction of this standard.

<b>Domain</b>	<b>Standard:</b> G.GPE.4 - Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$ .
<p><b><u>Expressing Geometric Properties with Equations</u></b>  <b>Use coordinates to prove simple geometric theorems algebraically</b></p>	<p><u>Questions to Focus Learning</u></p> <p>What theorems can be proven using coordinate geometry?</p> <p>Algebra can be used to prove geometric theorems.</p> <p><u>Student Friendly Objectives</u></p> <p><i>Knowledge Targets</i></p> <p>I can plot and identify points on a coordinate plane.</p> <p><i>Reasoning Targets</i></p> <p>I can differentiate among the formulas, theorems, and postulates needed for each coordinate proof.          I can apply geometric formulas, theorems, or postulates needed to justify each step of a coordinate proof.          I can compare and contrast algebraic proofs using coordinate geometry with other forms of proof.          I can prove geometric theorems using coordinate geometry.</p> <p><u>Vocabulary</u></p> <p>conjecture          coordinate          corollary          formula          origin          postulate          proof/prove          theorem</p>

	<p><u>Teacher Tips</u></p> <p>This standard has a close connection with circles. For example, one might address G.GPE.4 with G.GPE.1. Reasoning with triangles in this standard is limited to right triangles; e.g., derive the equation for a line through two points using similar right triangles.</p> <p>Include simple proofs involving circles.</p> <p><u>Vertical Progression</u></p> <p>G.GPE.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).</p> <p>G.GPE.6 - Find the point on a directed line segment between two given points that partitions the segment in a given ratio.</p> <p>G.GPE.7 - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula. *(Modeling Standard)</p>
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The above information and more can be accessed for free on the [Wiki-Teacher](#) website.

Direct link for this standard: [G.GPE.4](#)