



# Standard #: MAFS.912.G-GPE.2.7

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Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula. ★

<b>Subject Area:</b> Mathematics	<b>Grade:</b> 912
<b>Domain-Subdomain:</b> Geometry: Expressing Geometric Properties with Equations	<b>Cluster:</b> Level 1: Recall
<b>Cluster:</b> <a href="#">Use coordinates to prove simple geometric theorems algebraically. (Geometry - Major Cluster)</a> - Clusters should not be sorted from Major to Supporting and then taught in that order. To do so would strip the coherence of the mathematical ideas and miss the opportunity to enhance the major work of the grade with the supporting clusters.	<b>Date Adopted or Revised:</b> 02/14
<b>Content Complexity Rating:</b> <a href="#">Level 1: Recall</a> - <a href="#">More Information</a>	<b>Date of Last Rating:</b> 02/14
<b>Status:</b> State Board Approved	<b>Assessed:</b> Yes

## Remarks/Examples

### Geometry - Fluency Recommendations

Fluency with the use of coordinates to establish geometric results, calculate length and angle, and use geometric representations as a modeling tool are some of the most valuable tools in mathematics and related fields.

## TEST ITEM SPECIFICATIONS

**Item Type(s):** This benchmark may be assessed using: [EE](#) item(s)

N/A

**Assessment Limits :**

Items may require the use of the Pythagorean theorem.

Items may include convex, concave, regular, and/or irregular polygons.

In items that require the student to find the area, the polygon must be able to be divided into triangles and rectangles.

**Calculator :**

Neutral

**Clarification :**

Students will use coordinate geometry to find a perimeter of a polygon.

Students will use coordinate geometry to find the area of triangles and rectangles.

**Stimulus Attributes :**

Items must be set in a real-world context.

**Response Attributes :**

Items may require the student to apply the basic modeling cycle.

Items may require the student to use or choose the correct unit of measure.

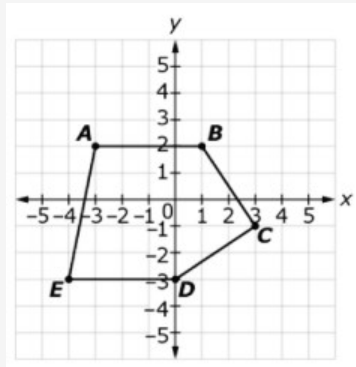
Items may require the student to find a dimension given the perimeter or area of a polygon.

## SAMPLE TEST ITEMS (1)

Test Item #: Sample Item 1

Question:

Polygon ABCDE is shown on the coordinate grid.



What is the perimeter, to the nearest hundredth of a unit, of polygon ABCDE?

Difficulty: N/A

Type: [EE: Equation Editor](#)

## Related Courses

Course Number	Course Title
<a href="#">1200400:</a>	Intensive Mathematics (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
<a href="#">1206300:</a>	Informal Geometry (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
<a href="#">1206310:</a>	Geometry (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
<a href="#">1206320:</a>	Geometry Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
<a href="#">1200700:</a>	Mathematics for College Readiness (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
<a href="#">7912060:</a>	Access Informal Geometry (Specifically in versions: 2014 - 2015 (course terminated))
<a href="#">1206315:</a>	Geometry for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
<a href="#">7912065:</a>	Access Geometry (Specifically in versions: 2015 and beyond (current))

## Related Access Points

Access Point

Access Points Number	Access Points Title
<a href="#">MAFS.912.G-GPE.2.AP.7a:</a>	Use the distance formula to calculate perimeter and area of polygons plotted on a coordinate plane.

## Related Resources

Perspectives Video: Professional/Enthusiast

Name	Description
<a href="#">Cataloging Cats with Cartesian Coordinates:</a>	This researcher knows where your cat lives! Watch how he uses coordinates and the distance formula to plot the location of hundreds of thousands of cats on a map.

Lesson Plan

Name	Description
<a href="#">Going the Distance:</a>	This lesson uses the Pythagorean Theorem to derive several iterations of the Distance Formula. The Distance Formula is then used to calculate the distance between two points on both directional maps and the Cartesian coordinate plane. Vocabulary relating to vectors is also introduced.
<a href="#">Just Plane Ole Area!:</a>	Students will construct various figures on coordinate planes and calculate the perimeter and area. Use of the distance formula and Pythagorean Theorem will be required.
<a href="#">My Geometry Classroom:</a>	Students will learn how to find the area and perimeter of multiple polygons in the coordinate plane using the composition and decomposition methods, with the support of previous knowledge on the Distance Formula and Pythagorean Theorem. Students will complete a Geometry Classroom Floor Plan group activity. Students will do a short presentation to discuss their results that leads to the realization that polygons with the same perimeter can have different areas. Students will also complete an independent practice and submit an exit ticket at the end of the lesson.

Formative Assessment

Name	Description
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<a href="#">Pentagon's Perimeter:</a>	Students are asked to find the perimeter of a pentagon given in the coordinate plane.
<a href="#">Perimeter and Area of a Rectangle:</a>	Students are asked to find the perimeter and the area of a rectangle given in the coordinate plane.
<a href="#">Perimeter and Area of a Right Triangle:</a>	Students are asked to find the perimeter and the area of a right triangle given in the coordinate plane.
<a href="#">Perimeter and Area of an Obtuse Triangle:</a>	Students are asked to find the perimeter and area of an obtuse triangle given in the coordinate plane.

Assessment

Name	Description
<a href="#">Sample 1 - High School Geometry State Interim Assessment:</a>	This is a State Interim Assessment for 9th-12th grade.
<a href="#">Sample 2 - High School Geometry State Interim Assessment:</a>	This is a State Interim Assessment for 9th-12th grade.
<a href="#">Sample 3 - High School Geometry State Interim Assessment:</a>	This is a State Interim Assessment for 9th-12th grade.
<a href="#">Sample 4 - High School Geometry State Interim Assessment:</a>	This is a State Interim Assessment for 9th-12th grades.