MSTAR PRACTICE WORKSHEET

Lesson 7-7: Represent Polygons on the Coordinate Plane

Grade 6 Mathematics · Standard 6.NOS.9

Name: _____ Date: _____

These are MSTAR-style questions written for this curriculum to rehearse the format. They are not official Maryland assessment items. MSTAR — Maryland's new state test, first given in spring 2027 — uses the same kinds of questions you see here: selected response, select-all, two-part evidence questions, and written responses.

Part A — Skills Check

Warm up with the lesson's core skills — one best answer each.

Question 1 SELECTED RESPONSE · 1 POINT

Vertices (-4.5, 3) and (5, 3) share y = 3. What is the distance between them?

A. 0.5 units

B. 1.5 units

C. 8 units

D. 9.5 units

Question 2 SELECTED RESPONSE · 1 POINT

Vertices (5, 3) and (5, -3.75) share x = 5. What is the distance between them?

A. 0.75 units

B. 5 units

C. 6.75 units

D. 8.75 units

Question 3 SELECTED RESPONSE · 1 POINT

What is the perimeter of the rectangle with side lengths 9.5 and 6.75 units?

A. 16.25 units

B. 26 units

C. 32.5 units

D. 64.125 units

Question 4 SELECTED RESPONSE · 1 POINT

Why are two of the terms multiplied by 2 in the perimeter calculation?

(A) Because perimeter always doubles the area

(B) Because there are two coordinates in each ordered pair

(C) It is a rounding rule

(D) A rectangle's opposite sides are equal, so each length appears on two sides

Question 5 SELECTED RESPONSE · 1 POINT

To draw a polygon from a list of vertices, you:

(A) Plot only the first vertex

(B) Connect the points in any random order

(C) Add all the coordinates together

(D) Plot each ordered pair, then connect them in order with segments

Question 6 SELECTED RESPONSE · 1 POINT

The park's marked vertices are 3 units apart and each unit is 100 feet. What is the park's width?

(A) 3 feet

(B) 30 feet

(C) 103 feet

(D) 300 feet

Part B — Test-Format Questions

These match the state test's formats: two-part questions, select-all, and written responses.

Question 7 TWO-PART QUESTION

Part A

A rectangle has vertices at (1, 1), (7, 1), (7, 5), and (1, 5). What is its perimeter?

Fill in the bubble next to the one best answer.

(A) 10 units

(B) 12 units

(C) 20 units

(D) 24 units

Part B

Answer Part A before Part B — Part B asks about your reasoning.

How can the side lengths be found from the coordinates alone?

(A) Count every grid square inside the rectangle.

(B) Each side is horizontal or vertical, so its length is the difference of the coordinates that change.

(C) Add all eight coordinate values together.

(D) Multiply the x-coordinates by the y-coordinates.

Question 8 SELECT ALL THAT APPLY

Select ALL statements that are true about polygons on the coordinate plane:

Mark the box next to EVERY answer that is true. More than one is correct.

[A] Vertices are connected in the order given to form the polygon.

[B] A horizontal side's length is the absolute difference of the x-coordinates.

[C] A vertical side's length is the absolute difference of the y-coordinates.

[D] The length of a slanted side can be found by subtracting coordinates.

[E] The area of a rectangle on the grid is the product of its side lengths.

Part C — Show Your Thinking

Answer in writing, the way the state test's constructed responses work.

Question 9 WRITTEN RESPONSE · 2 POINTS

The park design used width from coordinates, then length from the area, then the scale to place the missing vertices. Design your own version: pick an area and a scale, mark two vertices, and show where the other two go.

Write your answer in complete sentences. Show or explain your mathematical thinking.

Sentence starters: My area is ___ and each unit is ___ . · Width: ___ . Length: ___ ÷ ___ = ___ . · So the other vertices are at ___ .

When you finish, check your reasoning with your teacher or family. Your teacher has the scoring guide for the written responses.