2022 MCAS Sample Student Work and Scoring Guide

Grade 5 Mathematics
Question 13: Constructed-Response

Reporting Category: Geometry
Standard: 5.G.A.2 - Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
Item Description: Graph a given ordered pair on a coordinate plane, give the ordered pair of a point on a coordinate plane, and interpret coordinate values of points in the context of the situation.
Calculator: Not allowed

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Scoring Guide
Select a score point in the table below to view the sample student response.

Score*	Description
4A	The student response demonstrates an exemplary understanding of the Geometry concepts involved in representing real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpreting coordinate values of points in the context of the situation. The student correctly graphs given ordered pairs on a coordinate plane, gives the ordered pair of a point on a coordinate plane, and interprets coordinate values of points in the context of the situation.
4B	
3	The student response demonstrates a good understanding of the Geometry concepts involved in representing real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpreting coordinate values of points in the context of the situation. Although there is significant evidence that the student was able to recognize and apply the concepts involved, some aspect of the response is flawed. As a result, the response merits 3 points.
2	The student response demonstrates a fair understanding of the Geometry concepts involved in representing real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpreting coordinate values of points in the context of the situation. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 2 points.
1	The student response demonstrates a minimal understanding of the Geometry concepts involved in representing real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpreting coordinate values of points in the context of the situation.
0	The student response contains insufficient evidence of an understanding of the Geometry concepts involved in representing real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpreting coordinate values of points in the context of the situation. As a result, the response does not merit any points.

*Letters are used to distinguish between sample student responses that earned the same score (e.g., 4A and 4B).
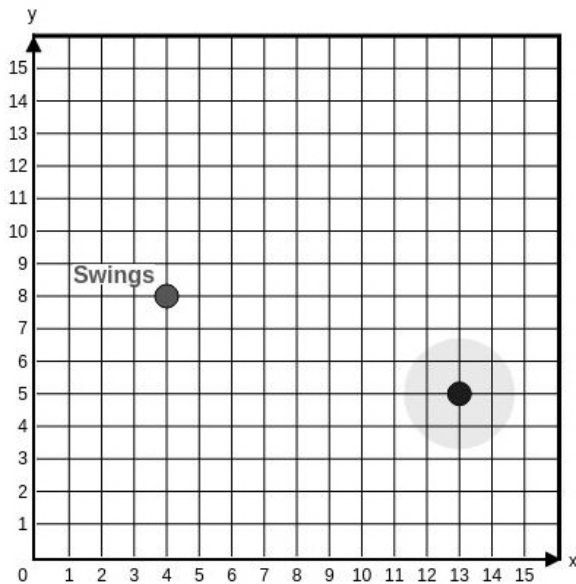
Score Point 4A

This question has four parts.

A city planner is using the coordinate plane shown to design a new playground. She has already plotted the location of the swings.

Part A

She will locate the slide at the point $(13, 5)$. Plot the point that represents the location of the slide.

Select the place on the coordinate plane to plot the point.

Part B

What is the ordered pair that represents the location of the swings on the coordinate plane in Part A?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(4, 8)$

Part C

The planner will locate the restroom 9 units from the origin along the x-axis and 2 units from the origin along the y-axis.

What is an ordered pair that she can use to represent the location of the restroom?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(9, 2)$

Part D

The planner will locate a picnic area 3 units away from the swings on the coordinate plane.

What are **two** ordered pairs that she can use to represent possible locations of the picnic area? Show or explain how you found your answers.

Enter your answers and your work or explanation in the space provided.

$(7,8)$ or $(4,11)$ I know $8 + 3$ is 11 and if I just went up, the x axis would be the same so one of my ordered pairs are (4,11). I also know $4 + 3 = 7$ and I would stay on the same y axis so my othere ordered pair would be (7,8).
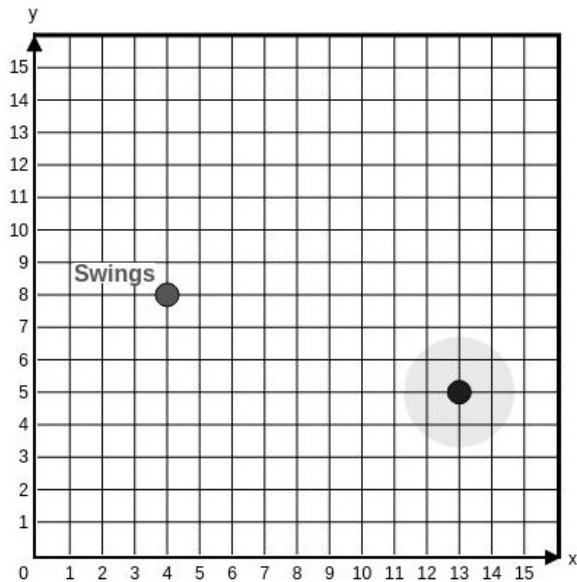
Score Point 4B

This question has four parts.

A city planner is using the coordinate plane shown to design a new playground. She has already plotted the location of the swings.

Part A

She will locate the slide at the point $(13, 5)$. Plot the point that represents the location of the slide.

Select the place on the coordinate plane to plot the point.

Part B

What is the ordered pair that represents the location of the swings on the coordinate plane in Part A?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(4, 8)$

Part C

The planner will locate the restroom 9 units from the origin along the *x*-axis and 2 units from the origin along the *y*-axis.

What is an ordered pair that she can use to represent the location of the restroom?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(9, 2)$

Part D

The planner will locate a picnic area 3 units away from the swings on the coordinate plane.

What are **two** ordered pairs that she can use to represent possible locations of the picnic area? Show or explain how you found your answers.

Enter your answers and your work or explanation in the space provided.

swings= $(4,8)$

picnic= 3 units away

$8 - 3 = 5$ $(4,5)$
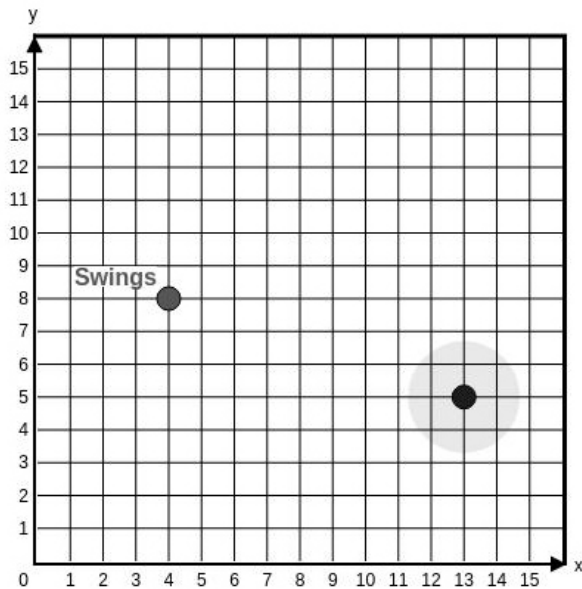
$4 - 3 = 1$ $(1,8)$

Score Point 3

This question has four parts.

A city planner is using the coordinate plane shown to design a new playground. She has already plotted the location of the swings.

Part A

She will locate the slide at the point $(13, 5)$. Plot the point that represents the location of the slide.

Select the place on the coordinate plane to plot the point.

Part B

What is the ordered pair that represents the location of the swings on the coordinate plane in Part A?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(4, 8)$

Part C

The planner will locate the restroom 9 units from the origin along the x-axis and 2 units from the origin along the y-axis.

What is an ordered pair that she can use to represent the location of the restroom?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(4, 5)$

Part D

The planner will locate a picnic area 3 units away from the swings on the coordinate plane.

What are **two** ordered pairs that she can use to represent possible locations of the picnic area? Show or explain how you found your answers.

Enter your answers and your work or explanation in the space provided.

I looked at the swings and moved 3 to the right and got (7,8). Next I looked at the swings and moved 3 down and got(4,5).
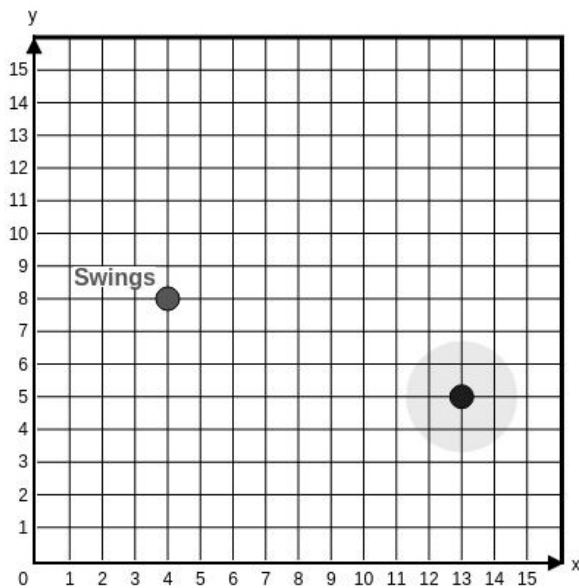
Score Point 2

This question has four parts.

A city planner is using the coordinate plane shown to design a new playground. She has already plotted the location of the swings.

Part A

She will locate the slide at the point $(13, 5)$. Plot the point that represents the location of the slide.

Select the place on the coordinate plane to plot the point.

Part B

What is the ordered pair that represents the location of the swings on the coordinate plane in Part A?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(4, 8)$

Part C

The planner will locate the restroom 9 units from the origin along the *x*-axis and 2 units from the origin along the *y*-axis.

What is an ordered pair that she can use to represent the location of the restroom?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(6, 14)$

Part D

The planner will locate a picnic area 3 units away from the swings on the coordinate plane.

What are **two** ordered pairs that she can use to represent possible locations of the picnic area? Show or explain how you found your answers.

Enter your answers and your work or explanation in the space provided.
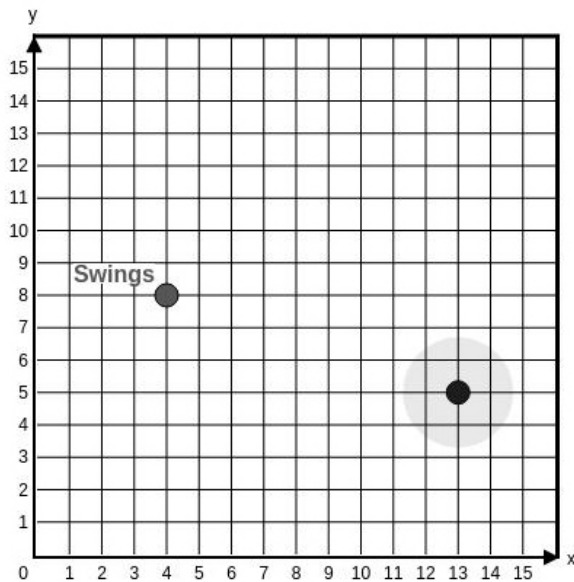
$(7,9)$

Back to Scoring Guide

Score Point 1

This question has four parts.

A city planner is using the coordinate plane shown to design a new playground. She has already plotted the location of the swings.

Part A

She will locate the slide at the point $(13, 5)$. Plot the point that represents the location of the slide.

Select the place on the coordinate plane to plot the point.

Part B

What is the ordered pair that represents the location of the swings on the coordinate plane in Part A?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(8, 4)$

Part C

The planner will locate the restroom 9 units from the origin along the *x*-axis and 2 units from the origin along the *y*-axis.

What is an ordered pair that she can use to represent the location of the restroom?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(13, 9)$

Part D

The planner will locate a picnic area 3 units away from the swings on the coordinate plane.

What are **two** ordered pairs that she can use to represent possible locations of the picnic area? Show or explain how you found your answers.

Enter your answers and your work or explanation in the space provided.

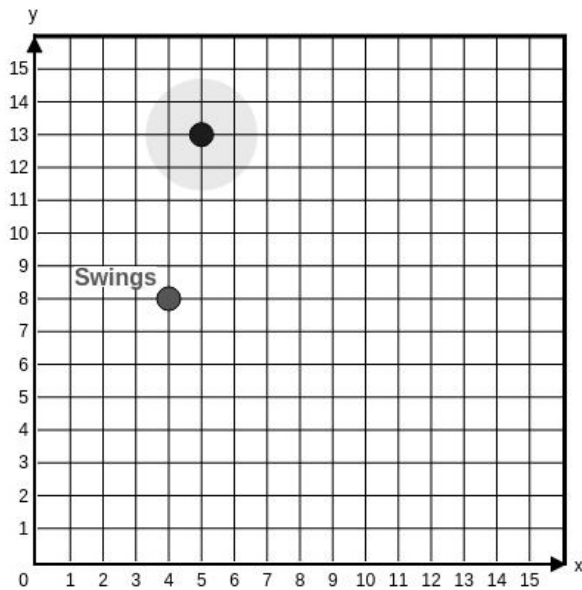She can located anywere but i think she should locat it 4,6

Score Point 0

This question has four parts.

A city planner is using the coordinate plane shown to design a new playground. She has already plotted the location of the swings.

Part A

She will locate the slide at the point $(13, 5)$. Plot the point that represents the location of the slide.

Select the place on the coordinate plane to plot the point.

Part B

What is the ordered pair that represents the location of the swings on the coordinate plane in Part A?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(8, 4)$

Part C

The planner will locate the restroom 9 units from the origin along the x-axis and 2 units from the origin along the y-axis.

What is an ordered pair that she can use to represent the location of the restroom?

Enter your ordered pair in the space provided. Enter **only** your ordered pair.

$(2, 9)$

Part D

The planner will locate a picnic area 3 units away from the swings on the coordinate plane.

What are **two** ordered pairs that she can use to represent possible locations of the picnic area? Show or explain how you found your answers.

Enter your answers and your work or explanation in the space provided.

$(8,6)$ $(8,2)$