2022 MCAS Sample Student Work and Scoring Guide

Grade 3 Mathematics
Question 15: Constructed-Response

Reporting Category: Measurement and Data
Standard: 3.MD.C.7 - Relate area to the operations of multiplication and addition.
Item Description: Determine the area of rectangles by counting squares or by multiplying the length times the width, and then determine the total area of a rectilinear figure.
Calculator: Not allowed

View item in MCAS Digital Item Library

Scoring Guide

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

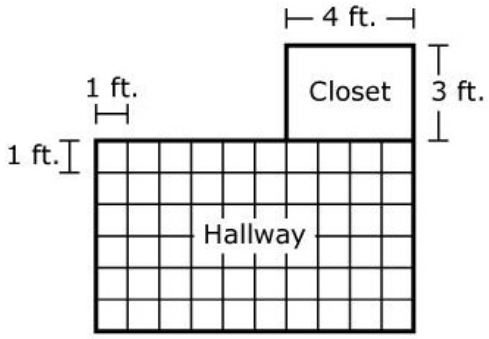
Score*	Description
3A	The student response demonstrates an exemplary understanding of the Measurement and Data concepts involved in relating area to the operations of multiplication and addition. The student solves a real-world problem by using tiles to determine the area of a rectangle, multiplying side lengths to determine area, and finding the total area of two non-overlapping rectangles.
3B	
2	The student response demonstrates a good understanding of the Measurement and Data concepts involved in relating area to the operations of multiplication and addition. 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 2 points.
1	The student response contains minimal evidence of an understanding of the Measurement and Data concepts involved in relating area to the operations of multiplication and addition. While some aspects of the task are completed correctly, others are not. The mixed evidence provided by the student merits 1 point.
0	The student response contains insufficient evidence of an understanding of the Measurement and Data concepts involved in relating area to the operations of multiplication and addition. 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., 3A and 3B).

Score Point 3A

This question has three parts.

This diagram shows the floors of a hallway and a closet.



The hallway floor is covered with square tiles, with no gaps or overlaps. Each tile has a side length of 1 foot.

Part A

What is the area, in square feet, of the hallway floor? Show or explain how you got your answer.

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

$6 \times 10 = 60$ square feet

Area = $L \times W$

Part B

The closet floor is in the shape of a rectangle with a length of 3 feet and a width of 4 feet.

Write an equation that can be used to find A, the area, in square feet, of the closet floor.

Enter your equation in the space provided.

4x $3 = A$

$A = 12$ square feet

Part C

Explain how to find the total area, in square feet, of the hallway floor **and** the closet floor. Be sure to include the total area in your answer.

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

$60 + 12 = 72$ square feet

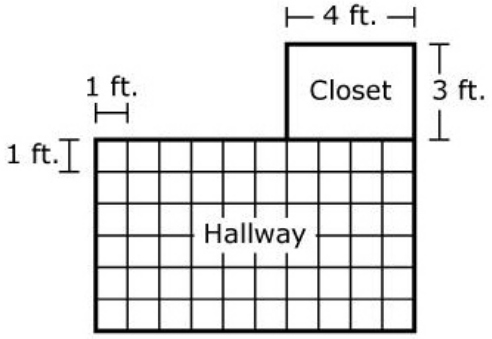
The total area of the closet and the hallway is 72 square feet

Back to Scoring Guide

Score Point 3B

This question has three parts.

This diagram shows the floors of a hallway and a closet.



The hallway floor is covered with square tiles, with no gaps or overlaps. Each tile has a side length of 1 foot.

Part A

What is the area, in square feet, of the hallway floor? Show or explain how you got your answer.

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

i did $6 \times 10 = 60$ sq ft and that is how i got my answer.

Part B

The closet floor is in the shape of a rectangle with a length of 3 feet and a width of 4 feet.

Write an equation that can be used to find A, the area, in square feet, of the closet floor.

Enter your equation in the space provided.

$3 \times 4 = A$ sq ft

Part C

Explain how to find the total area, in square feet, of the hallway floor **and** the closet floor. Be sure to include the total area in your answer.

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

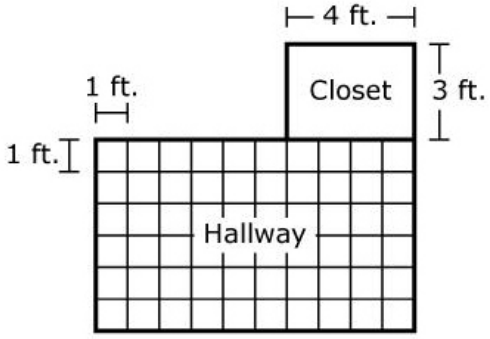
i did $60 + 12 = 72$ i got 60 by doing $6 \times 10 = 60$ and $4 \times 3 = 12$ and $12 + 60 = 72$. sq ft

Back to Scoring Guide

Score Point 2

This question has three parts.

This diagram shows the floors of a hallway and a closet.



The hallway floor is covered with square tiles, with no gaps or overlaps. Each tile has a side length of 1 foot.

Part A

What is the area, in square feet, of the hallway floor? Show or explain how you got your answer.

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

I counted the squares on each side and I got six on one of the sides and ten on the other side and I did $6 \times 10 = 60$. sq ft

Part B

The closet floor is in the shape of a rectangle with a length of 3 feet and a width of 4 feet.

Write an equation that can be used to find A, the area, in square feet, of the closet floor.

Enter your equation in the space provided.

$4 \times 3 = 12$

Part C

Explain how to find the total area, in square feet, of the hallway floor **and** the closet floor. Be sure to include the total area in your answer.

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

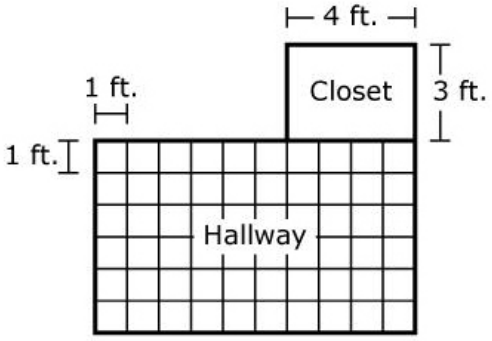
I took the 4 and the 3 and multiplyed it wich equals $4 \times 3 = 12$

Back to Scoring Guide

Score Point 1

This question has three parts.

This diagram shows the floors of a hallway and a closet.



The hallway floor is covered with square tiles, with no gaps or overlaps. Each tile has a side length of 1 foot.

Part A

What is the area, in square feet, of the hallway floor? Show or explain how you got your answer.

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

The hallway floor is 10 ft. and 6 ft.

Part B

The closet floor is in the shape of a rectangle with a length of 3 feet and a width of 4 feet.

Write an equation that can be used to find A, the area, in square feet, of the closet floor.

Enter your equation in the space provided.

$4 \times 3 = A$

Part C

Explain how to find the total area, in square feet, of the hallway floor **and** the closet floor. Be sure to include the total area in your answer.

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

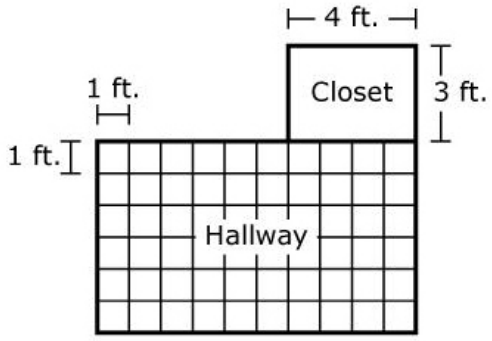
The total area is 59 ft.

Back to Scoring Guide

Score Point 0

This question has three parts.

This diagram shows the floors of a hallway and a closet.



The hallway floor is covered with square tiles, with no gaps or overlaps. Each tile has a side length of 1 foot.

Part A

What is the area, in square feet, of the hallway floor? Show or explain how you got your answer.

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

$1 + 1 + 4 + 3 = 9$

Part B

The closet floor is in the shape of a rectangle with a length of 3 feet and a width of 4 feet.

Write an equation that can be used to find A, the area, in square feet, of the closet floor.

Enter your equation in the space provided.

$4 + 3 = 7$

Part C

Explain how to find the total area, in square feet, of the hallway floor **and** the closet floor. Be sure to include the total area in your answer.

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

$1 \times 1 = 2$

Back to Scoring Guide