2025 MCAS Sample Student Work and Scoring Guide

Grade 4 Mathematics
Question 14: Constructed-Response

Reporting Category: Measurement and Data
Standard: 4.MD.A.1 - Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.
Item Description: Identify a liquid measurement in liters from a diagram, convert liters to milliliters, convert hours and minutes to only minutes, and compare masses given in different metric units..
Calculator: Not allowed

This item can be found in the released item sets on the MCAS Resource Center.

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 Measurement and Data concepts involved in knowing the relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb., oz.; l, ml; hr., min., sec., and within a single system of measurement, expressing measurements in a larger unit in terms of a smaller unit. The student correctly reads a measurement in liters from a diagram, converts liters to milliliters, converts hours to minutes, and compares masses given in different units.
4B	
3	The student response demonstrates a good understanding of the Measurement and Data concepts involved in knowing the relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb., oz.; l, ml; hr., min., sec., and within a single system of measurement, expressing measurements in a larger unit in terms of a smaller unit. Although there is significant evidence that the student could 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 Measurement and Data concepts involved in knowing the relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb., oz.; l, ml; hr., min., sec., and within a single system of measurement, expressing measurements in a larger unit in terms of a smaller unit. 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 Measurement and Data concepts involved in knowing the relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb., oz.; l, ml; hr., min., sec., and within a single system of measurement, expressing measurements in a larger unit in terms of a smaller unit.
0	The student response contains insufficient evidence of an understanding of the Measurement and Data concepts involved in knowing the relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb., oz.; l, ml; hr., min., sec., and within a single system of measurement, expressing measurements in a larger unit in terms of a smaller unit. 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).

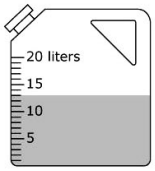
Score Point 4A

This question has four parts.

A gardener cut grass with a lawnmower and then raked and bagged leaves.

Part A

Before cutting the grass, the gardener added fuel to the lawnmower from a container. This picture shows the amount of fuel, in liters, **remaining** in the container after adding fuel to the lawnmower.



What is the total amount of fuel, in liters, remaining in the container?

Enter your answer in the box.

13 liters

Part B

The gardener used 2 liters of fuel to cut the grass.

What is the total amount of fuel, in **milliliters**, the gardener used to cut the grass? Show or explain how you got your answer.

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

1L = 1000 ML

So if we multiply 1000×2, we would end up with about 2000 milliliters.

Part C

It took the gardener 3 hours and 45 minutes to rake the leaves.

What is the total amount of time, in **minutes**, it took the gardener to rake the leaves? Show or explain how you got your answer.

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

1 hr = 60 minutes

If we have 3 hours, that would be 180 minutes because 60 x 3 = 180, and if we add 45, it will become 225.

Part D

The gardener placed the leaves into three large plastic bags: a black bag, a green bag, and a white bag.

- The mass of the black bag was 8 kilograms.
- The mass of the green bag was $7{,}900$ grams.
- The mass of the white bag was **less than** the mass of the black bag but **more than** the mass of the green bag.

What could be the mass, in **grams**, of the **white** bag? Show or explain how you got your answer.

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

8 kilograms is 8000 grams, and there's 7,900 grams in the green bag. There could be 7,950 in the bag because if it was like that, we'd be counting by 50s.

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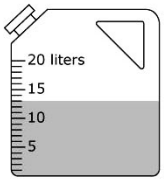
Score Point 4B

This question has four parts.

A gardener cut grass with a lawnmower and then raked and bagged leaves.

Part A

Before cutting the grass, the gardener added fuel to the lawnmower from a container. This picture shows the amount of fuel, in liters, **remaining** in the container after adding fuel to the lawnmower.



What is the total amount of fuel, in liters, remaining in the container?

Enter your answer in the box.

13 liters

Part B

The gardener used 2 liters of fuel to cut the grass.

What is the total amount of fuel, in **milliliters**, the gardener used to cut the grass? Show or explain how you got your answer.

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

$2x\ 1000 = 2000$

Part C

It took the gardener 3 hours and 45 minutes to rake the leaves.

What is the total amount of time, in **minutes**, it took the gardener to rake the leaves? Show or explain how you got your answer.

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

$3\,\text{hr} = 180$

$180 + 45 = 225$

Part D

The gardener placed the leaves into three large plastic bags: a black bag, a green bag, and a white bag.

- The mass of the black bag was 8 kilograms.
- The mass of the green bag was $7{,}900$ grams.
- The mass of the white bag was **less than** the mass of the black bag but **more than** the mass of the green bag.

What could be the mass, in **grams**, of the **white** bag? Show or explain how you got your answer.

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

8 kilo = 8000 grams

white = 7950

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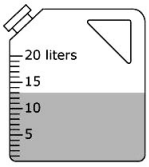
Score Point 3

This question has four parts.

A gardener cut grass with a lawnmower and then raked and bagged leaves.

Part A

Before cutting the grass, the gardener added fuel to the lawnmower from a container. This picture shows the amount of fuel, in liters, **remaining** in the container after adding fuel to the lawnmower.



What is the total amount of fuel, in liters, remaining in the container?

Enter your answer in the box.

13 liters

Part B

The gardener used 2 liters of fuel to cut the grass.

What is the total amount of fuel, in **milliliters**, the gardener used to cut the grass? Show or explain how you got your answer.

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

I need to know what the total number of milliliters the gardener used to cut the grass. I know that 100 milliliters is equal to 1 liter. I did $2 \times 100 = 200$. The gardener used 200 milliliters to cut the grass.

Part C

It took the gardener 3 hours and 45 minutes to rake the leaves.

What is the total amount of time, in **minutes**, it took the gardener to rake the leaves? Show or explain how you got your answer.

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

I need to know what amount of time in minutes it took the gardener to rake leaves. I know that it took them 3 hours and 45 minutes to rake. I also know that 60 minutes equals 1 hour. I did $60 \times 3 = 180$. $180 + 45 = 225$. It took the gardener 225 minutes to rake the leaves.

Part D

The gardener placed the leaves into three large plastic bags: a black bag, a green bag, and a white bag.

- The mass of the black bag was 8 kilograms.
- The mass of the green bag was $7{,}900$ grams.
- The mass of the white bag was **less than** the mass of the black bag but **more than** the mass of the green bag.

What could be the mass, in **grams**, of the **white** bag? Show or explain how you got your answer.

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

I need to know what the mass of the white bag in grams could be. I know that the green bag is 7,900 grams and the black bag is 8,000 grams. I did a number line to find out what the perfect number is. The white bag's mass could be 7,950 grams.

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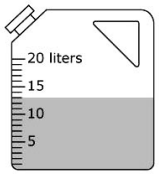
Score Point 2

This question has four parts.

A gardener cut grass with a lawnmower and then raked and bagged leaves.

Part A

Before cutting the grass, the gardener added fuel to the lawnmower from a container. This picture shows the amount of fuel, in liters, **remaining** in the container after adding fuel to the lawnmower.



What is the total amount of fuel, in liters, remaining in the container?

Enter your answer in the box.

7 liters

Part B

The gardener used 2 liters of fuel to cut the grass.

What is the total amount of fuel, in **milliliters**, the gardener used to cut the grass? Show or explain how you got your answer.

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

the garder used o.2 millters

Part C

It took the gardener 3 hours and 45 minutes to rake the leaves.

What is the total amount of time, in **minutes**, it took the gardener to rake the leaves? Show or explain how you got your answer.

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

3 hours =180min

180min $+45\,\text{min} = 225$

Part D

The gardener placed the leaves into three large plastic bags: a black bag, a green bag, and a white bag.

- The mass of the black bag was 8 kilograms.
- The mass of the green bag was $7{,}900$ grams.
- The mass of the white bag was **less than** the mass of the black bag but **more than** the mass of the green bag.

What could be the mass, in **grams**, of the **white** bag? Show or explain how you got your answer.

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

$8\,\text{kg} = 8{,}000g$

The wingth bag could hold 7,999 beacus it is less than 8,000 but more tha 7,999.

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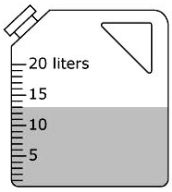
Score Point 1

This question has four parts.

A gardener cut grass with a lawnmower and then raked and bagged leaves.

Part A

Before cutting the grass, the gardener added fuel to the lawnmower from a container. This picture shows the amount of fuel, in liters, **remaining** in the container after adding fuel to the lawnmower.



What is the total amount of fuel, in liters, remaining in the container?

Enter your answer in the box.

13 liters

Part B

The gardener used 2 liters of fuel to cut the grass.

What is the total amount of fuel, in **milliliters**, the gardener used to cut the grass? Show or explain how you got your answer.

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

$11 \times 2 = 22$

Part C

It took the gardener 3 hours and 45 minutes to rake the leaves.

What is the total amount of time, in **minutes**, it took the gardener to rake the leaves? Show or explain how you got your answer.

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

$60 + 60 + 60 = 180$ $45 + 45 + 45 = 330$

Part D

The gardener placed the leaves into three large plastic bags: a black bag, a green bag, and a white bag.

- The mass of the black bag was 8 kilograms.
- The mass of the green bag was $7{,}900$ grams.
- The mass of the white bag was **less than** the mass of the black bag but **more than** the mass of the green bag.

What could be the mass, in **grams**, of the **white** bag? Show or explain how you got your answer.

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

$7{,}900 < 8$ kilograms

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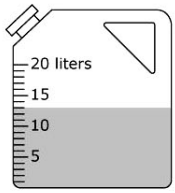
Score Point 0

This question has four parts.

A gardener cut grass with a lawnmower and then raked and bagged leaves.

Part A

Before cutting the grass, the gardener added fuel to the lawnmower from a container. This picture shows the amount of fuel, in liters, **remaining** in the container after adding fuel to the lawnmower.



What is the total amount of fuel, in liters, remaining in the container?

Enter your answer in the box.

35 liters

Part B

The gardener used 2 liters of fuel to cut the grass.

What is the total amount of fuel, in **milliliters**, the gardener used to cut the grass? Show or explain how you got your answer.

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

13 millimeters

Part C

It took the gardener 3 hours and 45 minutes to rake the leaves.

What is the total amount of time, in **minutes**, it took the gardener to rake the leaves? Show or explain how you got your answer.

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

135 minuetes cause $30 \times 3 + 45 = 135$

Part D

The gardener placed the leaves into three large plastic bags: a black bag, a green bag, and a white bag.

- The mass of the black bag was 8 kilograms.
- The mass of the green bag was $7{,}900$ grams.
- The mass of the white bag was **less than** the mass of the black bag but **more than** the mass of the green bag.

What could be the mass, in **grams**, of the **white** bag? Show or explain how you got your answer.

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

7852 killograms cause if it said what could the mass and 7852 is my guest

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