2025 MCAS Sample Student Work and Scoring Guide

Grade 6 Mathematics
Question 13: Constructed-Response

Reporting Category: Ratios and Proportional Relationships
Standard: 6.RP.A.3 - Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
Item Description: Use reasoning about percentages and unit rates to solve a multi-step, real-world problem.
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 Ratios and Proportional Relationships concepts involved in finding a percent of a quantity as a rate per 100.
4B	
3	The student response demonstrates a good understanding of the Ratios and Proportional Relationships concepts involved in finding a percent of a quantity as a rate per 100. 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 Ratios and Proportional Relationships concepts involved in finding a percent of a quantity as a rate per 100. 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 Ratios and Proportional Relationships concepts involved in finding a percent of a quantity as a rate per 100.
0	The student response contains insufficient evidence of an understanding of the Ratios and Proportional Relationships concepts involved in finding a percent of a quantity as a rate per 100 to 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.

Aaron visited 30% of the 50 states in the United States.

Part A

What **fraction** of the states did Aaron visit?

Enter your fraction in the space provided.

The fraction of states visited by Aaron is $\frac{15}{50}$

Part B

What is the total number of states that Aaron visited? Show or explain how you got your answer.

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

Aaron visited 15 out of the 50 states. I got my answer by multiplying $\frac{30}{100}$ which is 30% by $\frac{50}{1}$ which represents the 50 states.

Part C

Aaron will visit an additional 5 states this year. What will be the total percent of states Aaron will have visited by the end of this year? Show or explain how you got your answer.

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

The total percent of states visited by Aaron at the end of the year is 40%. I know this because Aaron added 5 states to what he has already visited which is 15. So by the end of the year he will have visited 20 states, and 20 out of 50 states is 40%.

Part D

Based on your answer to Part C, how many additional states must Aaron visit in order to have visited exactly 76% of the 50 states? Show or explain how you got your answer.

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

$\frac{76}{100} \times \frac{50}{1} = \frac{3800}{100} = 38$ states. 76% of 50 states is 38 states. Since Aaron has already visited 20 states, he must visit an additional 18 states to have visited exactly 76% of the 50 states.

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Score Point 4B

This question has four parts.

Aaron visited 30% of the 50 states in the United States.

Part A

What **fraction** of the states did Aaron visit?

Enter your fraction in the space provided.

$\frac{30}{100}$

Part B

What is the total number of states that Aaron visited? Show or explain how you got your answer.

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

Aaron visited 15 states in the United States.

$\frac{15}{50} = \frac{30}{100}$

Part C

Aaron will visit an additional 5 states this year. What will be the total percent of states Aaron will have visited by the end of this year? Show or explain how you got your answer.

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

When he visits those 5 additional states, he would have visited 40%.

$\frac{20}{50} = \frac{40}{100}$

Part D

Based on your answer to Part C, how many additional states must Aaron visit in order to have visited exactly 76% of the 50 states? Show or explain how you got your answer.

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

He would need to visit 18 more states which would mean he would need to visit 38 states in the United States to visit 76%.

$\frac{38}{50} = \frac{76}{100}$

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Score Point 3

This question has four parts.

Aaron visited 30% of the 50 states in the United States.

Part A

What **fraction** of the states did Aaron visit?

Enter your fraction in the space provided.

Aaron visted $\frac{3}{5}$ of the U.S. states.

Part B

What is the total number of states that Aaron visited? Show or explain how you got your answer.

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

Aaron visted 15 states.

$$\frac{30}{100} = \frac{?}{50}$$
$$100 \div 2 = 50$$
$$30 \div 2 = 15$$
$$\frac{30}{100} = \frac{15}{50}$$

Part C

Aaron will visit an additional 5 states this year. What will be the total percent of states Aaron will have visited by the end of this year? Show or explain how you got your answer.

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

Aaron will have visted 40 percent of the U.S.

$$\frac{20}{50} = \frac{?}{100}$$
$$50 \times 2 = 100$$
$$20 \times 2 = 40$$
$$\frac{20}{50} = \frac{40}{100}$$

Part D

Based on your answer to Part C, how many additional states must Aaron visit in order to have visited exactly 76% of the 50 states? Show or explain how you got your answer.

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

Aaron will have to visit 18 more states.

$$\frac{76}{100} = \frac{?}{50}$$
$$100 \div 2 = 50$$
$$76 \div 2 = 38$$
$$\frac{76}{100} = \frac{38}{50}$$
$$38 - 20 = 18$$

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Score Point 2

This question has four parts.

Aaron visited 30% of the 50 states in the United States.

Part A

What **fraction** of the states did Aaron visit?

Enter your fraction in the space provided.

$\frac{30}{50}$

Part B

What is the total number of states that Aaron visited? Show or explain how you got your answer.

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

The total number of states that Aaron visited is 15. I got this answer from the 30% he visited from 50 states which would have meant every 10% is 5 states. $10 \times 5 = 50$ which is the 50 states.

Part C

Aaron will visit an additional 5 states this year. What will be the total percent of states Aaron will have visited by the end of this year? Show or explain how you got your answer.

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

Aarons percent is 40 because since he went to 5 states this year and every 5 states is 10 % and before he went to those 5 states this year it was 30% and that added by 10% is 40%.

Part D

Based on your answer to Part C, how many additional states must Aaron visit in order to have visited exactly 76% of the 50 states? Show or explain how you got your answer.

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

I think that he would need to go to at least 15 more states to be at least pretty close to 76%. With the 40% added with another 30% would be 70% and every 10% is 5 so $5 \times 3 = 15$ and the three is from the 3 10's from 30% cause $3 \times 10 = 30$, 30%.

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Score Point 1

This question has four parts.

Aaron visited 30% of the 50 states in the United States.

Part A

What **fraction** of the states did Aaron visit?

Enter your fraction in the space provided.

I'd say Aaron visited closer to $\frac{1}{4}$ of the states because 25 is five away from thirty.

Part B

What is the total number of states that Aaron visited? Show or explain how you got your answer.

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

$\frac{30}{100} = \frac{15}{50}$

I think Aaron visited 15 of the 50 states because if you use a percent proportion 50 is half of 100 and whatever you do to the bottom you have to do to the top. So you would divide 30 by 2 to get 15.

Part C

Aaron will visit an additional 5 states this year. What will be the total percent of states Aaron will have visited by the end of this year? Show or explain how you got your answer.

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

The total percent of states for this year would be 36% because $30 \div 5 = 6$ so you would add an additional 6 percent.

Part D

Based on your answer to Part C, how many additional states must Aaron visit in order to have visited exactly 76% of the 50 states? Show or explain how you got your answer.

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

He would have to visit 30 more states because if 5 states is 6% then you would just keep adding until you get to 76%.

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Score Point 0

This question has four parts.

Aaron visited 30% of the 50 states in the United States.

Part A

What **fraction** of the states did Aaron visit?

Enter your fraction in the space provided.

$50 \cdot 2 = 100$

$30\% \cdot 2 = 60\% = \frac{1}{6}$

Part B

What is the total number of states that Aaron visited? Show or explain how you got your answer.

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

$50 \,/\, 2 = 25 + 5 = 30\%$

Part C

Aaron will visit an additional 5 states this year. What will be the total percent of states Aaron will have visited by the end of this year? Show or explain how you got your answer.

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

$30\% + 5\% = 35\%$

Part D

Based on your answer to Part C, how many additional states must Aaron visit in order to have visited exactly 76% of the 50 states? Show or explain how you got your answer.

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

$76\% - 60\% = 16$

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