

2026 MCAS Sample Student Work and Scoring Guide

Grade 5 Mathematics

Question 4: Constructed-Response

Reporting Category: Operations and Algebraic Thinking

Standard: [5.OA.B.3](#) - Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.

Item Description: Extend two different addition patterns and explain the relationship between corresponding terms in the patterns.

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 4B	The student response demonstrates an exemplary understanding of the Operations and Algebraic Thinking concepts involved in generating two numerical patterns using two given rules and identifying apparent relationships between corresponding terms. The student correctly extends two different patterns and explains the relationship between corresponding terms in the patterns.
3	The student response demonstrates a good understanding of the Operations and Algebraic Thinking concepts involved in generating two numerical patterns using two given rules and identifying apparent relationships between corresponding terms. 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 Operations and Algebraic Thinking concepts involved in generating two numerical patterns using two given rules and identifying apparent relationships between corresponding terms. 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 Operations and Algebraic Thinking concepts involved in generating two numerical patterns using two given rules and identifying apparent relationships between corresponding terms.
0	The student response contains insufficient evidence of an understanding of the Operations and Algebraic Thinking concepts involved in generating two numerical patterns using two given rules and identifying apparent relationships between corresponding terms. 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 three parts.

Part A

The rules for a number pattern, Pattern S, are listed in this box.

Pattern S

- To get from each number to the next, add 4.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern S?

Enter your answer in the space provided.

← → B I U MATH

The first six numbers are 0, 4, 8, 12, 16, 20. I start from 0 and add 4 to each number.

$0+4 = 4$	$4+4 = 8$
$8+4 = 12$	$12+4 = 16$
$16+4 = 20$	

Part B

The rules for a different number pattern, Pattern T, are listed in this box.

Pattern T

- To get from each number to the next, add 12.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern T?

Enter your answer in the space provided.

← → B I U MATH

The first six numbers are 0, 12, 24, 36, 48, 60. I add 12 to each number starting from 0.

$0+12 = 12$	$12+12 = 24$
$24+12 = 36$	$36+12 = 48$
$48+12 = 60$	

Part C

The first number in Pattern S corresponds to the first number in Pattern T. The second number in Pattern S corresponds to the second number in Pattern T. This continues for all the numbers in the two patterns.

What is the relationship between all the corresponding numbers in the two patterns? Show or explain how you got your answer.

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

← → B I U MATH

I notice that if you multiply each number by 3 in Pattern S, you will get the same numbers in Pattern T. If you divide each number by 3 in Pattern T, you will get the same numbers in Pattern S.

$0 \times 3 = 0$	$4 \times 3 = 12$	$8 \times 3 = 24$
$12 \times 3 = 36$	$16 \times 3 = 48$	$20 \times 3 = 60$

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Score Point 4B

This question has three parts.

Part A

The rules for a number pattern, Pattern S, are listed in this box.

Pattern S

- To get from each number to the next, add 4.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern S?

Enter your answer in the space provided.

0, 4, 8, 12, 16, 20, 24

Part B

The rules for a different number pattern, Pattern T, are listed in this box.

Pattern T

- To get from each number to the next, add 12.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern T?

Enter your answer in the space provided.

0, 12, 24, 36, 48, 60, 72

Part C

The first number in Pattern S corresponds to the first number in Pattern T. The second number in Pattern S corresponds to the second number in Pattern T. This continues for all the numbers in the two patterns.

What is the relationship between all the corresponding numbers in the two patterns? Show or explain how you got your answer.

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

The relationship between all the corresponding numbers is $\times 3$. I figured this out by putting the numbers in rows and trying to find the difference between them

0	4	8	12...
0	12	24	36...
$0 \times 3 = 0$	$4 \times 3 = 12$	$8 \times 3 = 24$	$12 \times 3 = 36$

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Score Point 3

This question has three parts.

Part A

The rules for a number pattern, Pattern S, are listed in this box.

Pattern S

- To get from each number to the next, add 4.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern S?

Enter your answer in the space provided.

← → **B** *I* U ☰ ☷ ☹ ☹ ☹ MATH 🗲

The first six numbers of pattern S are zero, four, eight, twelve, sixteen and twenty.

Part B

The rules for a different number pattern, Pattern T, are listed in this box.

Pattern T

- To get from each number to the next, add 12.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern T?

Enter your answer in the space provided.

← → **B** *I* U ☰ ☷ ☹ ☹ ☹ MATH 🗲

The first six numbers of pattern T are zero, twelve, twenty four, thirty, thirty six and forty two.

Part C

The first number in Pattern S corresponds to the first number in Pattern T. The second number in Pattern S corresponds to the second number in Pattern T. This continues for all the numbers in the two patterns.

What is the relationship between all the corresponding numbers in the two patterns? Show or explain how you got your answer.

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

← → **B** *I* U ☰ ☷ ☹ ☹ ☹ MATH 🗲

The relationship between the patterns is that you multiply pattern S number by 3 and get the T number. I got this by looking at the patterns and I saw $4 \times 3 = 12$, $8 \times 3 = 24$ etc.

Score Point 2

This question has three parts.

Part A

The rules for a number pattern, Pattern S, are listed in this box.

Pattern S

- To get from each number to the next, add 4.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern S?

Enter your answer in the space provided.

← → **B** *I* U ☰ ☷ ☹ ☹ ☹ MATH ↕

The answer is 0, 4, 8, 12, 16, 20,

Part B

The rules for a different number pattern, Pattern T, are listed in this box.

Pattern T

- To get from each number to the next, add 12.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern T?

Enter your answer in the space provided.

← → **B** *I* U ☰ ☷ ☹ ☹ ☹ MATH ↕

The answer is 0, 12, 24, 36, 48, 60

Part C

The first number in Pattern S corresponds to the first number in Pattern T. The second number in Pattern S corresponds to the second number in Pattern T. This continues for all the numbers in the two patterns.

What is the relationship between all the corresponding numbers in the two patterns? Show or explain how you got your answer.

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

← → **B** *I* U ☰ ☷ ☹ ☹ ☹ MATH ↕

The both patterns have only even numbers.

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Score Point 1

This question has three parts.

Part A

The rules for a number pattern, Pattern S, are listed in this box.

Pattern S

- To get from each number to the next, add 4.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern S?

Enter your answer in the space provided.

↶ ↷ **B** *I* U ☰ ☲ ☳ ☴ ☵ ☶ ☷ MATH ↵

4, 8, 12, 16, 20, 24

Part B

The rules for a different number pattern, Pattern T, are listed in this box.

Pattern T

- To get from each number to the next, add 12.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern T?

Enter your answer in the space provided.

↶ ↷ **B** *I* U ☰ ☲ ☳ ☴ ☵ ☶ ☷ MATH ↵

12, 24, 48, 64, 98, 116

Part C

The first number in Pattern S corresponds to the first number in Pattern T. The second number in Pattern S corresponds to the second number in Pattern T. This continues for all the numbers in the two patterns.

What is the relationship between all the corresponding numbers in the two patterns? Show or explain how you got your answer.

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

↶ ↷ **B** *I* U ☰ ☲ ☳ ☴ ☵ ☶ ☷ MATH ↵

multiples of 2 because $2 \times 2 = 4$ and $2 \times 6 = 12$

Score Point 0

This question has three parts.

Part A

The rules for a number pattern, Pattern S, are listed in this box.

Pattern S

- To get from each number to the next, add 4.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern S?

Enter your answer in the space provided.

↶ ↷ **B** *I* U ☰ ☷ ☹ ☺ ☻ ☼ ☽ ☾ ☿ ☿ ☿ MATH ☑

0+4 = 4
1+4 = 5
2+4 = 6
3+4 = 7
4+4 = 8
5+4 = 9

Part B

The rules for a different number pattern, Pattern T, are listed in this box.

Pattern T

- To get from each number to the next, add 12.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern T?

Enter your answer in the space provided.

↶ ↷ **B** *I* U ☰ ☷ ☹ ☺ ☻ ☼ ☽ ☾ ☿ ☿ ☿ MATH ☑

0+12 = 12
1+12 = 13
2+12 = 14
3+12 = 15
4+12 = 16
5+12 = 17

Part C

The first number in Pattern S corresponds to the first number in Pattern T. The second number in Pattern S corresponds to the second number in Pattern T. This continues for all the numbers in the two patterns.

What is the relationship between all the corresponding numbers in the two patterns? Show or explain how you got your answer.

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

↶ ↷ **B** *I* U ☰ ☷ ☹ ☺ ☻ ☼ ☽ ☾ ☿ ☿ ☿ MATH ☑

If w keep doing this pattern the relationship will be the same first numbers for all of them.

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