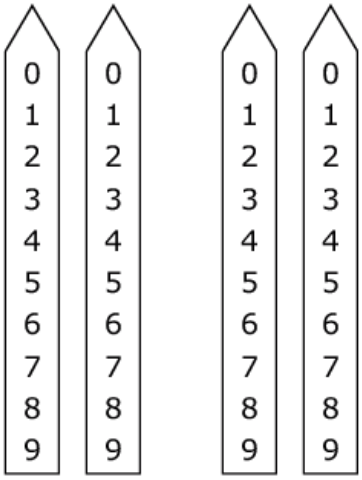
Task Model 1 **Response Type:** **Multiple Choice, single correct response** **DOK Level 2** **5.OA.B.3** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.* **Evidence Required:** 1. Given two rules, the student identifies and explains apparent relationships between corresponding terms of two related numerical patterns. **Tools:** None	**Prompt Features:** The student is prompted to identify apparent relationships between corresponding terms of two related numerical patterns. **Stimulus Guidelines:** • Item difficulty can be adjusted via these example methods: ○ One-step rule using addition, subtraction, multiplication, or division (up to 4-digit by 1-digit) of whole numbers ○ One-step rule using addition and subtraction of fractions with common denominators, or multiplication by unit fractions ○ One-step rule using addition, subtraction, and multiplication of fractions with non-common denominators **TM1** **Stimulus:** The student is presented with the starting number and rule for two related numerical patterns. **Example Stem:** Patterns A and B are generated using these rules. • Pattern A: Start with 10 and add 5. • Pattern B: Start with 2 and add 1. Which statement **best** describes the relationship between the corresponding terms of Pattern A and Pattern B? A. Each term in Pattern A is $\frac{1}{5}$ of the value of the corresponding term in Pattern B. B. Each term in Pattern A is 4 more than the value of the corresponding term in Pattern B. C. Each term in Pattern A is 5 times the value of the corresponding term in Pattern B. D. Each term in Pattern A is 8 more than the value of the corresponding term in Pattern B. **Rubric:** (1 point) The student selects the correct description of the relationship (e.g., C). **Response Type:** Multiple Choice, single correct response

Task Model 2a **Response Type:** **Multiple Choice, single correct response** **DOK Level 2** **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. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.* **Evidence Required:** 2. Given two rules, the student represents corresponding terms from two related numerical patterns as ordered pairs and plots them on a coordinate plane. **Tools:** None	**Prompt Features:** The student is prompted to identify an ordered pair or set of ordered pairs that correspond to a given stimulus. **Stimulus Guidelines:** • Item difficulty can be adjusted via these example methods: ○ One-step rule using addition, subtraction, multiplication, or division (up to 4-digit by 1-digit) of whole numbers ○ One-step rule using addition and subtraction of fractions with common denominators, or multiplication by unit fractions ○ One-step rule using addition, subtraction, and multiplication of fractions with non-common denominators **TM2a** **Stimulus:** The student is presented with the starting number and rule for two related numerical patterns. **Example Stem:** Patterns P and Q are generated using these rules. • Pattern P: Start with 0 and add 1. • Pattern Q: Start with 0 and add $\frac{1}{4}$. Which set of ordered pairs is generated from corresponding terms of Pattern P and Pattern Q? A. $(0, 0), (1, \frac{1}{4}), (2, \frac{1}{2}), (3, \frac{3}{4})$ B. $(1, \frac{1}{4}), (1, \frac{1}{2}), (1, \frac{3}{4}), (1, 1)$ C. $(0, 0), (1, 2), (2, 3), (3, 4)$ D. $(\frac{1}{4}, \frac{1}{2}), (\frac{1}{2}, \frac{3}{4}), (\frac{3}{4}, 1), (1\frac{1}{4}, 1\frac{1}{2})$ **Rubric:** (1 point) The student selects the correct set of ordered pairs (e.g., A). **Response Type:** Multiple Choice, single correct response

Task Model 2b **Response Type:** **Hot Spot** **DOK Level 2** **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. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.* **Evidence Required:** 2. Given two rules, the student represents corresponding terms from two related numerical patterns as ordered pairs and plots them on a coordinate plane. **Tools:** None **Version 3 update:** Removed redundant prompt and guidelines from TM2b. **Accessibility Note:** Hot Spot items are not currently able to be Brailled. Minimize the number of items developed to this TM.	**TM2b** **Stimulus:** The student is presented with the starting number and rule for two related numerical patterns. **Example Stem:** Patterns P and Q are generated using these rules. • Pattern P: Start with 2 and add 3. • Pattern Q: Start with 2 and add 2. The first two ordered pairs generated by these rules are (2, 2) and (5, 4). Enter the fifth ordered pair generated from corresponding terms of Pattern P and Pattern Q. (___ ___ , ___ ___)  **Rubric:** (1 point) The student correctly enters the ordered pair for the corresponding fifth terms in the given patterns [e.g., (14, 10)]. **Response Type:** Hot Spot

Task Model 2c

Response Type:
Multiple Choice, single correct response

DOK Level 2

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. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*

Evidence Required:
2. Given two rules, the student represents corresponding terms from two related numerical patterns as ordered pairs and plots them on a coordinate plane.

Tools: None

Prompt Features: The student is prompted to identify the graph that represents a set of ordered pairs generated by two patterns.

Stimulus Guidelines:

- Answer choices will be graphs showing four points in the first quadrant.
- Item difficulty can be adjusted via these example methods:
  - One-step rule using addition, subtraction, multiplication, or division (up to 4-digit by 1-digit) of whole numbers
  - One-step rule using addition and subtraction of fractions with common denominators, or multiplication by unit fractions
  - One-step rule using addition, subtraction, and multiplication of fractions with non-common denominators

TM2c
Stimulus: The student is presented with the starting number and rule for two related numerical patterns.

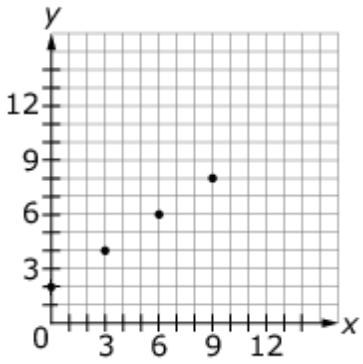
Example Stem: Patterns X and Y are generated using these rules.

- Pattern X: Start with 0 and add 3.
- Pattern Y: Start with 2 and add 2.

Which graph shows a set of points representing ordered pairs formed by corresponding terms in these two patterns?

[Note: Options are four different graphs

Rubric: (1 point) The student selects the correct graph (e.g., shown below).



Response Type: Multiple Choice, single correct response

Task Model 2d

Response Type: Graphing

DOK Level 2

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. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*

Evidence Required:
2. Given two rules, the student represents corresponding terms from two related numerical patterns as ordered pairs and plots them on a coordinate plane.

Tools: None

Accessibility Note:
Graphing items are not currently able to be Brailled. Minimize the number of items developed to this TM.

Prompt Features: The student is prompted to graph three or four ordered pairs on a coordinate plane.

Stimulus Guidelines:

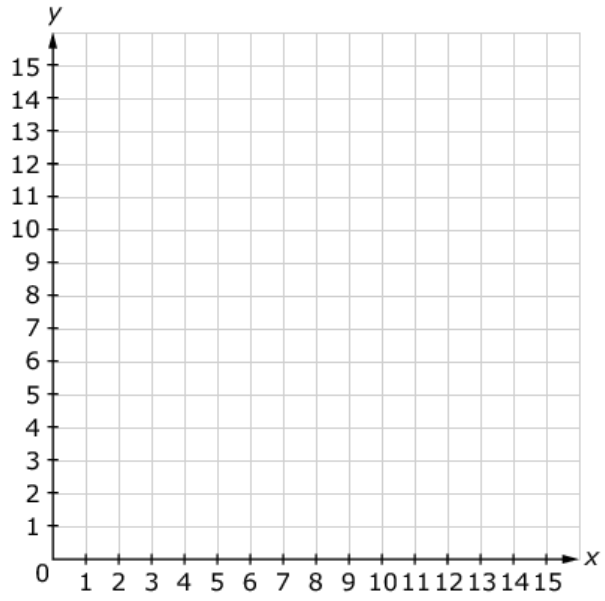
- All points will be in the first quadrant of the coordinate plane.
- Item difficulty can be adjusted via these example methods:
  - One-step rule using addition, subtraction, multiplication, or division (up to 4-digit by 1-digit) of whole numbers
  - One-step rule using addition and subtraction of fractions with common denominators, or multiplication by unit fractions
  - One-step rule using addition, subtraction, and multiplication of fractions with non-common denominators

TM2d
Stimulus: The student is presented with the starting number and rule for two related numerical patterns.

Example Stem: Patterns X and Y are generated using these rules.

- Pattern X: Start with 5 and add 5.
- Pattern Y: Start with 1 and add 2.

Graph three points to represent the ordered pairs formed by the first three corresponding terms in Pattern X and Pattern Y.



Rubric: (1 point) The student correctly plots three points [e.g., (5, 1), (10, 3), (15, 5) OR (1, 5), (3, 10), (5, 15)].

Response Type: Graphing