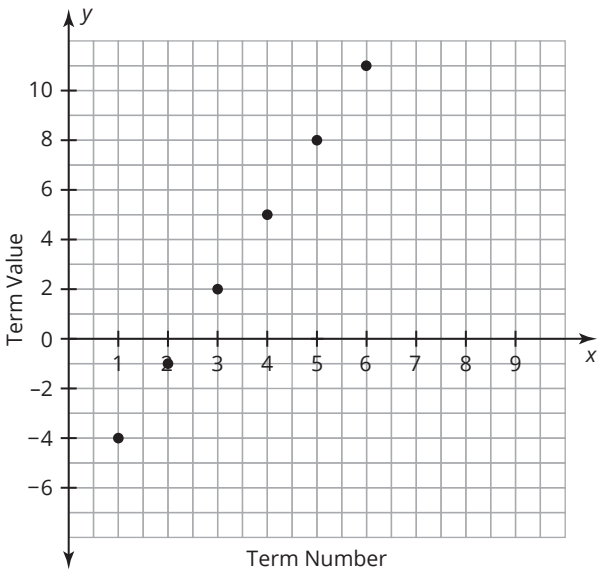
Enhanced End of Topic Assessment

Name _____ Date _____

Part A: Multiple-Choice Questions

1. Which explicit formula is represented by the graph?



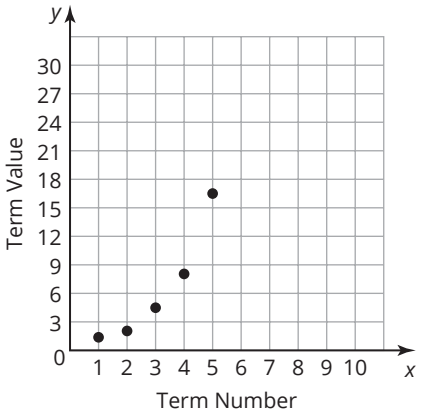
a. $a_n = -4 + 3(n - 1)$

b. $a_n = 3 - 4(n - 1)$

c. $a_n = -6 + 3(n - 1)$

d. $a_n = -4 + 2(n - 1)$

2. Which explicit formula is represented by the graph?



a. $g_n = 1^{n-1}$

b. $g_n = (-1)^{n-1}$

c. $g_n = 2^{n-1}$

d. $g_n = (-2)^{n-1}$

3. Which representation shows the first five terms of a sequence given by the recursive formula $a_n = a_{n-1} + 5$, where $a_1 = 15$?

a. 15, 10, 5, 0, –5

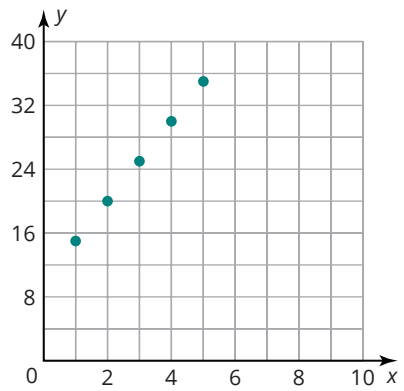
b.

n	a_n
1	20
2	25
3	30
4	35
5	40

c.

n	a_n
1	15
2	25
3	35
4	45
5	55

d.



4. A sequence can be generated by using $g_n = r \cdot g_{n-1}$, where $g_1 = 6$, $r = 4$ and n is a whole number greater than 1. What are the first four terms in the sequence?

a. 6, 24, 96, 384

b. 6, 10, 14, 18

c. 6, 20, 100, 500

d. 6, 20, 76, 300

5. In the sequence of numbers, $g_3 = -48$, $g_4 = -96$, $g_5 = -192$, $g_6 = -384$, and $g_7 = -768$. Based on this information, which equation can be used to find the nth term in the sequence, g_n?

a. $g_n = -48 \cdot 2^{n+1}$

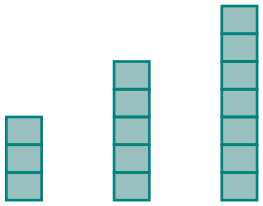
b. $g_n = -48 \cdot 2^{n-1}$

c. $g_n = -12 \cdot 2^{n+1}$

d. $g_n = -12 \cdot 2^{n-1}$

Part B: Open-Response Questions

6. Consider the sequence shown.



a. Write an explicit formula for this sequence.

b. Write a recursive formula for this sequence.

7. A sequence can be generated using $a_{n+1} = -0.25 + a_n$, where $a_1 = 5$ and n is a whole number greater than 1. What are the first 5 terms in the sequence?

8. A sequence can be generated by using $g_n = 2(g_{n-1})$, where $g_1 = \frac{1}{3}$ and n is a whole number greater than 1. What are the first 5 terms of the sequence?

9. Determine the 40th term in the sequence defined by $a_n = -12 + 4(n - 2)$.

10. Determine the 5th term in the sequence defined by $g_n = 9 \cdot \left(\frac{1}{3}\right)^{n-1}$.

11. For the sequence, write an explicit formula and a recursive formula.

$a_1 = 12.6, a_2 = 5.6, a_3 = -1.4,$
$a_4 = -8.4, a_5 = -15.4, \ldots$

12. A Petri dish is filled with 250 bacterial cultures. The number of bacteria in the dish triples every hour.

a. Write a recursive and an explicit formula to represent the sequence that models the scenario.

b. Predict the number of bacterial cultures in the dish after 8 hours. Explain your reasoning.

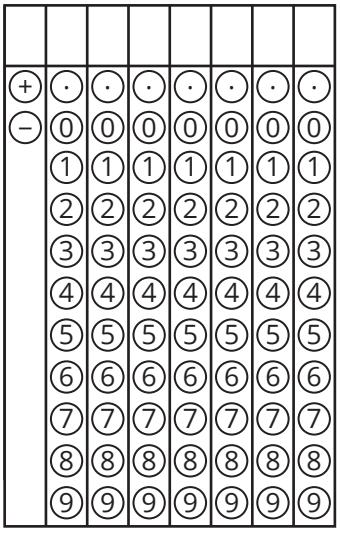
c. Does this sequence represent a function? Explain your reasoning.

13. A sequence can be generated by using $g_n = 3(g_{n-1})$, where $g_1 = 5$ and n is a whole number greater than 1. What are the first five terms of the sequence?

Part C: Griddable Response Questions

Record your answers and fill in the bubbles.

14. What is the 28th term of the sequence $a_n = a_{n-1} + 5.2$, if the 26th term is 42.3?



15. What is the 7th term of the sequence $g_n = g_{n-1} \cdot (-2)$, if $g_3 = 20$?