

2.1 Change in Arithmetic and Geometric Sequences

AP Precalculus

Name: _____

CA #1

Find an equation that gives the n th term of each sequence. Use the initial value ($k = 0$) of the sequence in your equation.

1. $\{-57, -42, -27, -12, \dots\}$

2. $\left\{\frac{1}{5}, \frac{6}{5}, \frac{36}{5}, \frac{216}{5}, \dots\right\}$

3. $\left\{-18, -6, -2, -\frac{2}{3}, \dots\right\}$

Find an equation that gives the n th term of each sequence. Instead of the initial value use the k th term of the sequence in your equation. k is given for each problem.

4. $\{192, 48, 12, 3, \dots\}$ $k = 1$

5. $\{-63, -66, -69, -72, \dots\}$
 $k = 3$

6. $\{0.25, 2, 16, 128, \dots\}$ $k = 4$

Find the n th term of each sequence. Write an equation for each sequence before finding the n th term.

7. $\{107, 97, 87, 77, \dots\}$ What is the 65th term?

8. $\{8, 16, 24, 32, \dots\}$ What is the 107th term?

9. Which of the following equations could represent the sequence $\{2, 6, 10, 14, \dots\}$?

I. $f(n) = 4n - 2$

II. $f(n) = 4n + 2$

III. $f(n) = 2n + 4$

IV. $f(n) = 2 + 4(n - 1)$

V. $f(n) = 10 + 4(n - 2)$

VI. $f(n) = -6 + 4(n + 1)$

10. Which of the following equations could represent the sequence $\{25, 5, 1, \frac{1}{5}, \dots\}$?

I. $f(n) = 125\left(\frac{1}{5}\right)^n$

II. $f(n) = \frac{1}{5}(25)^{n-1}$

III. $f(n) = 25\left(\frac{1}{5}\right)^{n-1}$

IV. $f(n) = \frac{1}{5}(5)^{n-2}$

Answers to 2.1 CA #1

1. $a_n = -72 + 15n$	2. $g_n = \frac{1}{30}(6)^n$	3. $g_n = -54\left(\frac{1}{3}\right)^n$	4. $g_n = 192\left(\frac{1}{4}\right)^{n-1}$	5. $a_n = -69 - 3(n - 3)$
6. $g_n = 128(8)^{n-4}$	7. -533	8. 856	9. I, IV, and VI.	10. I and III.