Algebra 1

Name_____

All mixed up sequences

Date_____ Period_____

Find the recursive formula.

1) 23, 3, −17, −37, ...

  A) $a_n = a_{n-1} - 20$
    $a_1 = 24$

  B) $a_n = a_{n-1} - 20$
    $a_1 = -16$

  C) $a_n = a_{n-1} - 20$
    $a_1 = 4$

  D) $a_n = a_{n-1} - 20$
    $a_1 = 23$

2) 33, −67, −167, −267, ...

  A) $a_n = a_{n-1} - 99$
    $a_1 = 33$

  B) $a_n = a_{n-1} - 98$
    $a_1 = 33$

  C) $a_n = a_{n-1} - 100$
    $a_1 = -67$

  D) $a_n = a_{n-1} - 100$
    $a_1 = 33$

Find the explicit formula.

3) −4, −12, −36, −108, ...

  A) $a_n = 4 \cdot 5^{n-1}$

  B) $a_n = 4 \cdot \left(\dfrac{1}{5}\right)^{n-1}$

  C) $a_n = -4 \cdot 3^{n-1}$

  D) $a_n = 4 \cdot (-3)^{n-1}$

4) 2, 10, 50, 250, ...

  A) $a_n = 8 \cdot 5^{n-1}$

  B) $a_n = 9 \cdot 5^{n-1}$

  C) $a_n = 2 \cdot 5^{n-1}$

  D) $a_n = 10 \cdot 5^{n-1}$

Find the term named in the problem.

5) −8, −208, −408, −608, ...
  Find a_{26}

  A) $a_{26} = -4958$ B) $a_{26} = -5008$
  C) $a_{26} = -5354$ D) $a_{26} = -5156$

6) 25, 16, 7, −2, ...
  Find a_{40}

  A) $a_{40} = -344$ B) $a_{40} = -335$
  C) $a_{40} = -326$ D) $a_{40} = -353$

Find the 8th term.

7) −4, −16, −64, −256, ...

  A) $a_8 = -390625$

  B) $a_8 = -65536$

  C) $a_8 = -468750$

  D) $a_8 = -312500$

8) −2, 12, −72, 432, ...

  A) $a_8 = -\dfrac{1}{64}$ B) $a_8 = -256$

  C) $a_8 = 559872$ D) $a_8 = \dfrac{1}{32}$

Find the common difference, the 52nd term, the explicit formula, and the recursive formula.

9) 26, 22, 18, 14, ...

10) 6, 0, −6, −12, ...

Find the common ratio, the 8th term, the explicit formula, and the recursive formula.

11) 2, 6, 18, 54, ...

12) 2, −8, 32, −128, ...

Find the common difference, the 52nd term, the explicit formula, and the recursive formula.

13) 0, 5, 10, 15, ...

14) 19, 14, 9, 4, ...

Determine if the sequence is geometric. If it is, find the common ratio, the 8th term, the explicit formula, and the recursive formula.

15) −2, 8, −32, 128, ...

16) 3, 18, 108, 648, ...