

Got It? 3. Write a recursive formula for each term of each sequence?

a. 3, 9, 15, 21, ...

$\begin{array}{ccc} \vee & \vee & \vee \\ +6 & +6 & +6 \end{array}$

$$A(n) = A(n-1) + d$$

} only thing that changes

$$A(n) = A(n-1) + 6$$

$$A(1) = 3$$

Explicit Formula:

a function
rule that relates each
term of a sequence to
the term number

will be the
same - term# of sequence

$$A(n) = A(1) + (n-1)(d)$$

↑
first
term
of
sequence

↑
common
difference

Term Number, n	1	2	3	4
Value of Term, $A(n)$	200	210	220	230

term #	Value of term	(4)
1	200	> +10 .
2	210	> +10
3	220	> +10
4	230	

Find the 10th term:

$$n=10$$

$$A(10) = 200 + (\underbrace{10}_{\checkmark} - 1)(10)$$

$$A(10) = 200 + (\underbrace{9}_{\checkmark})(10)$$

$$A(10) = 200 + 90$$

$$A(10) = 290$$

Step 1: Find common difference

Common
diff : + 10

Step 2: Write explicit formula

$$A(n) = A(1) + (n-1)(d)$$

$$A(n) = 200 + (n-1)(10)$$

$$A(n) = 200 + (n-1)(10)$$

ex: $\textcircled{4}, 8, 12, 16$

Write an explicit formula for the following pattern.

Common difference: $+4$

$$A(n) = A(1) + (n-1)(d)$$

↑
replace

← replace

$$A(n) = 4 + (n-1)(4)$$

Find the 8th term

$$n = 8$$

$$A(8) = 4 + (8-1)(4)$$

$$A(8) = 4 + (7)(4)$$

$$A(8) = 4 + 28$$

$$\boxed{A(8) = 32}$$

$$25. \quad A(n) = 2 + (n+1)(6)$$

$$\text{third} - 3 = n$$

$$\text{fifth} - 5 = n$$

$$\text{tenth} - 10 = n$$

$$A(3) = 2 + (3+1)(6)$$

$$A(3) = 2 + (4)(6)$$

$$A(3) = 2 + 24$$

$$A(3) = 26$$

$$A(5) = 2 + (5+1)(6)$$

$$A(5) = 2 + (6)(6)$$

$$A(5) = 2 + 36$$

$$A(5) = 38$$

Tell whether each sequence is arithmetic. Justify your answer. If the sequence is arithmetic, write a recursive and an explicit formula to represent it.

$$22, 16, 10, 4$$

\downarrow \downarrow \downarrow
 -6 -6 -6

Recursive:

$$A(n) = A(n-1) + d$$

$$A(n) = A(n-1) + (-6)$$

Explicit:

$$A(n) = A(1) + (n-1)(d)$$

$$A(n) = 22 + (n-1)(-6)$$

$$-18, -9, 0, 9$$

\vee \vee \vee
 +9 +9 +9

$$A(n) = A(n-1) + d$$

$$A(n) = A(n-1) + 9$$

$$A(n) = A(1) + (n-1)d$$

$$A(n) = -18 + (n-1)(9)$$

1. What is something you learned today?
2. What is something you are struggling with? (please be specific)
3. Solve the following problem:
What is the 10th term of the sequence?

$$A(n) = 6 + (n - 1)(-2)$$

6, 12, 24, 48

