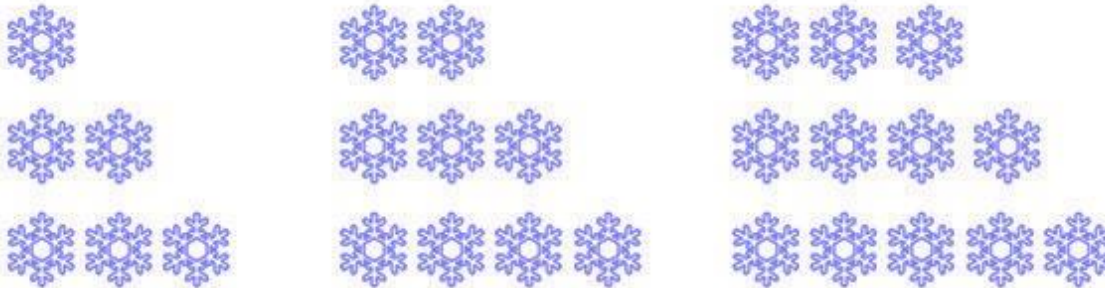# WARMUP

- **Is this an arithmetic or geometric sequence?**

- **Write the recursive rule for the sequence:**

  _____

RETURN OF THE QUIZZES

HW CHECK

ALTERNATE NOTATION FOR SEQUENCES…

- Although subscript notation is the most common way to write sequences, you can also use function notation.

- a_n can also be written as $f(n)$

- a_{n-1} can also be written as $f(n - 1)$

- a_{12} can also be written as $f(12)$

- etc.

Write the recursive rule for the sequence. Use function notation!

3, 23, 43, 63, …

f(1) = 3;

f(n) = f(n − 1)+20

Write the recursive rule for the sequence. <u>Use function notation.</u>

$$6, 12, 24, 48, \ldots$$

$f(1) = 6;$

$f(n) = 2 \cdot f(n - 1)$

Write the recursive rule for the sequence.

1/2, 1/8, 1/32, 1/128, …

$f(1) = \dfrac{1}{2};$

$f(n) = \dfrac{1}{4} \cdot f(n - 1)$

WHAT ARE THE FIRST FOUR TERMS OF THE SEQUENCE DEFINED BY THE RECURSIVE RULE?

$$a_1 = 4$$

$$a_n = a_{n-1} + 5$$

4, 9, 14, 19

WHAT ARE THE FIRST FOUR TERMS OF THE SEQUENCE DEFINED BY THE RECURSIVE RULE?

$$a_1 = 4$$

$$a_n = 5 \cdot a_{n-1}$$

4, 20, 100, 500

WHAT ARE THE FIRST FOUR TERMS OF THE SEQUENCE DEFINED BY THE RECURSIVE RULE?

$$a_1 = 4$$

$$a_{n+1} = a_n + 8$$

4, 12, 20, 28

WHAT ARE THE FIRST FOUR TERMS OF THE SEQUEN DEFINED BY THE RECURSIVE RULE?

$$a_1 = 4$$

$$a_{n+1} = 3 \cdot a_n$$

4, 12, 36, 108

Margaret adopted 5 cats from the shelter. Each year, she adopts 3 more cats. Let f(1) = 5 represent the number of cats Margaret had the first year. Which recursive formula could you use to find the total number of cats Margaret will have after *x* years?

A. f(x) = 3 • f(x+1)   C. f(x) = f(x+1) + 3

B. f(x+1) = 3 • f(x)   D. f(x+1) = f(x) + 3

Describe, using words, what each of these expressions mean.

1. a_{14} **The 14th term**

2. a_n **The "nth" term (current term)**

3. a_{n-1} **Previous term**

4. $f(n + 1)$ **Next term**

5. n **Position number of the current term**

6. $f(1)$ **1st term**

7. **What is the difference between "n" and "f(n)"? Explain.** **n is a position number. f(n) is the actual value of the term.**

WRITE A RECURSIVE RULE FOR THE FIBONACCI SEQUENCE

- 1, 1, 2, 3, 5, 8, …

$f(1) = 1$

$f(2) = 1$

$f(n) = f(n-1) + f(n-2)$ for $n > 2$

The first term in a sequence is 8. Consecutive terms in the sequence have a common difference. The fourth term in the sequence is 17.

Select the function, $f(n)$, that represents this sequence for $n \geq 1$.

A.
$$f(1) = 8$$
$$f(n+1) = f(n) - 3$$

B.
$$f(1) = 8$$
$$f(n+1) = f(n) + 3$$

C.
$$f(1) = 8$$
$$f(n+1) = \frac{9}{4}f(n)$$

D.
$$f(1) = 8$$
$$f(n+1) = \frac{17}{8}f(n)$$

B

Find the indicated term of the arithmetic sequence.

Find a_5:

$a_1 = 3$

$a_n = a_{n-1} - 13$

-49

Find the indicated term of the arithmetic sequence.

The 8th term: $a_1 = 11$; $d = 3$

32

Find the indicated term of the arithmetic sequence.

Find a_{60}: 11, 5, –1, –7, …

-343