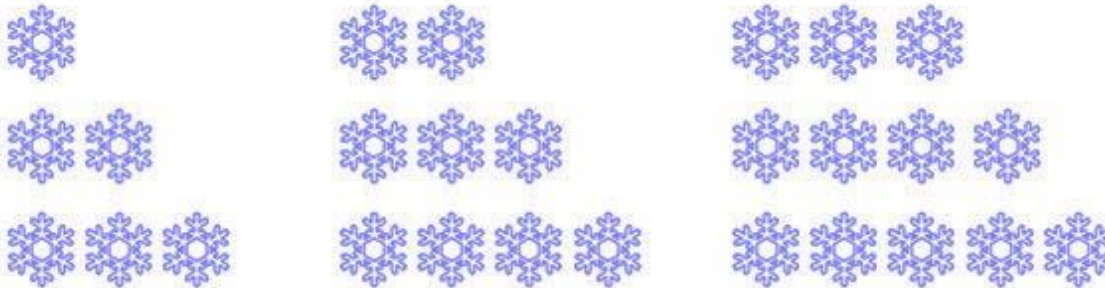


# YOU HAVE 15 MINUTES OF PLT!!!

- **Get your homework out – I am still checking for it during this time.**
- **Also, get a whiteboard/marker/eraser**
- **Ask me homework questions now if any of it was confusing!!!**
- **I NEED ONE TABLE TO VOLUNTEER TO STAPLE PAPERS FOR ME!!!**

# WARMUP

12/ (# OF T'S IN "TENNESSEE TITANS")



- Is this an arithmetic or geometric sequence?
- Write the recursive rule for the sequence:

---



HW CHECK

# TABLE OF CONTENTS

...	
Domain & Range	p. 10
Slope	p. 11
Slope WITHOUT a graph	p. 12
Slope-Intercept Form	p. 13
Standard Form	p. 14
Point-Slope Form	p. 15
Solving Linear Inequalities	p. 16
Exponent Rules	p. 17
Exponent Rules 2: Power to a Power	p. 18
Linear vs. Exponential	p. 19
Average Rate of Change	p. 20
Exponentials with Percents	p. 21
Compound Interest	p. 22
<b>Intro to Sequences, Recursive Rules</b>	<b>p. 23</b>

**[BACK TO THIS PAGE](#)**

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

## ANOTHER WAY TO WRITE RECURSIVE RULES...

- 10, 16, 22, 28, ...
- **FIRST TERM** = 10
- **NEXT TERM** = **CURRENT TERM** + 6
  
- $a_1 = 10$
- $a_{n+1} = a_n + 6$

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 SEQUENCE  
DEFINED BY THE RECURSIVE RULE?

$$a_1 = 4$$

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

**4, 12, 36, 108**

## 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. Use function notation.**

**6, 12, 24, 48, ...**

$$f(1) = 6;$$

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

---

**Write the recursive rule for the sequence.**

**$1/2, 1/8, 1/32, 1/128, \dots$**

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

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

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.  $f(x) = 3 \cdot f(x+1)$       C.  $f(x) = f(x+1) + 3$   
B.  $f(x+1) = 3 \cdot f(x)$       D.  $f(x+1) = f(x) + 3$

---

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

1.  $a_{14}$  **The 14<sup>th</sup> 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.  $f(1)$  **1<sup>st</sup> term**

7. **What is the difference between “n ” and “f(n)”?**  
**Explain.**

$n$  is the position number of the term.  
 $f(n)$  is the actual value of the term.

# WRITE A RECURSIVE RULE FOR THE FIBONACCI SEQUENCE

■ 1, 1, 2, 3, 5, 8, ...

$$f(1) = 1$$

$$f(2) = 1$$

$$f(n) = f(n-1) + f(n-2) \text{ for } n > 2$$



# TABLE OF CONTENTS

...

Domain & Range	p. 10
Slope	p. 11
Slope WITHOUT a graph	p. 12
Slope-Intercept Form	p. 13
Standard Form	p. 14
Point-Slope Form	p. 15
Solving Linear Inequalities	p. 16
Exponent Rules	p. 17
Exponent Rules 2: Power to a Power	p. 18
Linear vs. Exponential	p. 19
Average Rate of Change	p. 20
Exponentials with Percents	p. 21
Compound Interest	p. 22
<b>Intro to Sequences, Recursive Rules</b>	<b>p. 23</b>
<b>Explicit Rules for Sequences</b>	<b>p. 24</b>

---

**Find the 10<sup>th</sup> term of the sequence:**

**10, 12, 14, 16, ...**

- 4<sup>th</sup> term is 16, need to add 2 six more times

$$10^{\text{th}} \text{ term} = 28$$



**Find the 9<sup>th</sup> term of the sequence:**

**70, 65, 60, 55, 50, ...**

**30**



**Find the indicated term of the arithmetic sequence.**

**Find  $a_{25}$ :  $a_1 = -5$ ;  $d = -2$**

**-53**



**Find the indicated term of the arithmetic sequence.**

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

**32**