#### Sequences Review Classwork

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

- 1. a1 the first term
- 2. an the 1th term / current term
- 3. an+1 the next term
  - 4. f(n-1) the previous term
  - the position in the sequence
  - 6. f(5) the first term

#### 2. What is the difference between "n" and "f(n)"? Explain

n is the position in the sequence f(n) is the value of the term

#### 3. Write a Recursive Rule for The Fibonacci Sequence

1, 1, 2, 3, 5, 8, ... 
$$Q_1 = 1$$
  
 $Q_2 = 1$   
 $Q_n = Q_{n-2} + Q_{n-1}$ 

#### 4. Find the indicated term of each sequence.

7th term: -2, 22, -242, ...  $-2(-3)^6 = (-3.543,122)$ 

$$a_5$$
:  $a_1 = 3$ ,  $a_n = a_{n-1} - 13$   $3$   $-10$   $-23$   $-36$   $-49$ 

$$a_4: a_n = \frac{n^2}{32}$$
  $a_4 = \frac{4^2}{32}$   $a_4 = \frac{16}{32} = \frac{1}{2}$ 

## 5. Write the explicit and recursive formula for this sequence using subscript notation.

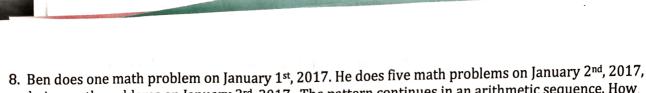
# 6. Write the explicit and recursive formula for this sequence using function notation

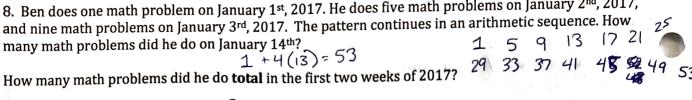
Recusive | Recusive | F(n) = 2 (7)^{n-1} | f(n) = f(n) 7 | f(n) = f(n) 7 2, 14, 98, 686, ...

What is the difference between recursive formulas and explicit formulas? Which would you want to use to find the 100th term?

Recursive formulas you need to find all of the previous terms before the term you're looking for

Explicit formules you can plug in for n and find the term you're looking for.
You would want to use the explicit formula to find the looks term
because you wouldn't want to find 94 terms before when using the





9. If the  $31^{st}$  term of an **arithmetic sequence** is 150, and each consecutive term has a common difference of 3, find the explicit formula for the sequence. What is the  $42^{nd}$  term?

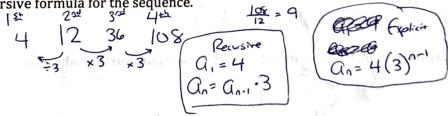
$$31^{44}$$
 $150 - 3(30) = 60$  for the first term
$$0_{n} = 60 + 3(n-1)$$

$$0_{42} = 183$$

10. If the 25<sup>th</sup> term of an arithmetic sequence is 50 and the 27<sup>th</sup> term is 100, write an explicit and recursive formula for the sequence.



11. If the 2<sup>nd</sup> term of a **geometric sequence** is **12** and the 4<sup>th</sup> term of a geometric sequence is **108**, write an explicit and recursive formula for the sequence.



- 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  $n \ge 1$ .

A. 
$$f(1) = 8$$
  
 $f(n+1) = f(n) - 3$   
 $f(1) = 8$   
 $f(n+1) = f(n) + 3$   
 $f(1) = 8$   
C.  $f(n+1) = \frac{9}{4}f(n)$ 

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