

9/2 class notes

Topic: chapter 1.1 recursive formulas

Main Idea & Notation:

- When given a line of numbers
 $5, 9, 13, 17, 21, \dots$
 \uparrow
 u_1 "u sub 1" meaning the 1st term
- The recursive formula always has 3 parts
 - ① $u_1 = \underline{\quad}$ or $u_0 = \underline{\quad}$
 - ② $u_n = u_{n-1} + \text{common difference (arithmetic)}$
 or $u_n = u_{n-1} \cdot \text{common ratio (geometric)}$
 - ③ $n \geq 2$ or $n \geq 1$ (constraint)
 \uparrow use this when given u_1 \uparrow use this when given u_0

→ note with the recursive formula you use the previous term to get the new term.

$$\underbrace{u_n}_{\text{new term}} = \underbrace{u_{n-1}}_{\text{previous term}} + \text{c.d.}$$

ex write the recursive formula for
 $5, 9, 13, 17, 21$
 $u_1 = 5$
 $u_n = u_{n-1} + 4$
 $n \geq 2$

vocab:

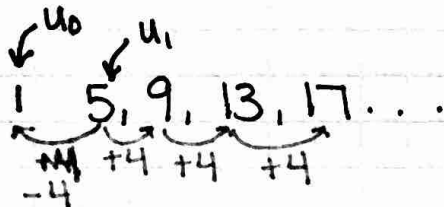
- common difference: the # you are adding or subtracting each time to go from term to term
 - only arithmetic
- common ratio: what you multiply by each time to get the next term
 - only geometric
 - find it by doing u_2/u_1 & u_3/u_2 , they should be the same if it's geometric

notation

- u_0 says "u sub 0" meaning this is the 0th term in the sequence

extra info

- how do I find u_0 the "zerOTH term"? work backwards!



$$u_0 = u_1 - \text{c.d. arithmetic}$$

$$\text{OR } u_0 = \frac{u_1}{\text{c.r.}} \text{ geometric}$$

graphing

