

PreAP PreCal Log Week 6.2

Use the following sequence to answer the questions.

$$a_n = \begin{cases} \frac{a_{n-1}}{2} & \text{if } a_{n-1} \text{ is even} \\ 3a_{n-1} + 1 & \text{if } a_{n-1} \text{ is odd} \end{cases}$$

1. If  $a_1 = 7$ , write the first 20 terms of the sequence.
2. Choose 4 different values for  $a_1$ , two being positive and two being negative, (other than  $a_1 = 7$ ) and find the first 20 terms of each new sequence.
3. What conclusion can you make about the behavior of this sequence?