I affirm that I have not consulted my text, notes or any reference, paper or electronic, or any person once I opened and/or looked at this quiz.

Name:

## Signature:

Show all work needed to reach your answers.

Consider the continued root

Quiz 4

$$\sqrt{5 + \sqrt{5 + \sqrt{5 + \dots}}}$$

- 1. (2 points) Which sequence is equivalent to this continued root?
- 2. (3 points) Call this sequence  $\{a_n\} = \{a_1, a_2, a_3, ...\}$  (just to give it and its terms a name). Please write down the recurrence formula giving  $a_{n+1}$  in terms of  $a_n$ .
- 3. (12 points) This sequence can be shown to be increasing, so to guarantee convergence, **please use the** recurrence formula to show the sequence is bounded above. Hint: Induction.

4. (8 points) Please compute the value of this continued root (the limit of the sequence).

D Term, 2021