1. Please circle True or False, as appropriate.
   (a) T / F: The Fibonacci sequence \{1, 1, 2, 3, 5, 8, 13, \ldots\} converges.
   (b) T / F: The sequence \{-1, 1, -1, 1, -1, 1, \ldots\} converges.
   (c) T / F: If $0 < a_n < b_n$ and $b_n \to 0$ as $n \to \infty$, then the sequence \{a_n\} converges.
   (d) T / F: If $a_n \to 0$ as $n \to \infty$, the sequence \{a_n\} converges.
   (e) T / F: If $a_n \to 0$ as $n \to \infty$, the series $\sum a_n$ converges.
   (f) T / F: If $a_n \to 2$ as $n \to \infty$, the sequence \{a_n\} converges.
   (g) T / F: If $a_n \to 2$ as $n \to \infty$, the series $\sum a_n$ converges.
   (h) T / F: The Harmonic series
   \[
   \sum_{n=1}^{\infty} \frac{1}{n} = 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \cdots
   \]
   converges.

2. Find examples of sequences with the following properties.
   (a) A sequence that is decreasing.

   (b) A sequence that is bounded but not monotone.