The quiz is on two pages. There are 3 questions. Time limit 20 minutes. Closed book, no calculators.

1. Bounded Sequences
   a. (Finish the following definition) Definition: A sequence $s_n$ is bounded if

   b. Give examples of the following sequences or explain why no such sequence exists:

      (i) A bounded sequence that converges

      (ii) A bounded sequence that diverges

      (iii) A convergent sequence that is not bounded

   c. Is the following sequence bounded or unbounded? If bounded, give a bound $M$ for the sequence. $s_n = 2 + \frac{1}{n}$.

2. Prove using the $\varepsilon$ definition of limit that $s_n = 3 - \frac{2}{n^2}$ converges to $L = 3$. 
3. Finish these definitions:
   a. A function \( f : A \rightarrow B \) is onto B if

   b. A function \( f : A \rightarrow B \) is one-to-one if