(10) 1. Give a formula for the n^{th} term of the sequence $-1, \frac{1}{4}, -\frac{1}{9}, \frac{1}{16}, -\frac{1}{25}, \frac{1}{36}, \dots$

(10) 2. Give an example of a sequence $\{a_n\}_{n=1}^{\infty}$ that is increasing and has $\lim_{n\to\infty} a_n = 0$. You may give a formula for a_n or list at least eight terms of the sequence to make a clear pattern.

(10) 3. Write the first few terms of the infinite series $\sum_{n=0}^{\infty} \left(\frac{3}{4}\right)^n$ and then find its sum.