6. (48 points) Given $\sum_{n=1}^{\infty} a_n = 0.72$, $b_n = n^2$, $c_n = (n+1)^3$ determine whether or not the following statements are is True or False. To receive full credit, you must justify your decision with a calculation, a sentence or two, or a relevant picture that illustrates your thinking.

   a. $\lim_{n\to\infty} a_n = 0.72$.

   b. $a_{n+1} < a_n$ for all n.

   c. $\lim_{n\to\infty} s_n = 0.72$ where $s_n = a_1 + a_2 + \ldots + a_n$

   d. $\lim_{n\to\infty} \frac{b_n}{c_n}$ converges.

   e. $\sum_{n=1}^{\infty} \frac{b_n}{c_n}$ converges.

   f. $\sum_{n=1}^{\infty} (-1)^n \frac{b_n}{c_n}$ converges.