(24)   7. True or false? If false, give an example to show that the implication is not true. If true, briefly explain why.

a) If $\{a_k\}$ is a **sequence** of real numbers so that $\{|a_k|\}$ converges, then $\{a_k\}$ must converge.

b) If $\{a_k\}$ and $\{b_k\}$ are **sequences** of real numbers and L is a real number so that $\lim_{k\to\infty} a_k = L$ and $\lim_{k\to\infty} b_k = L$, then $\lim_{k\to\infty} \dfrac{a_k}{b_k} = 1$.

c) If $\{a_k\}$ is a **sequence** of real numbers and L is a real number so that $\lim_{k\to\infty} a_k = L$, then $\lim_{k\to\infty} (a_{k+1} - a_k) = 0$.

d) If $\{a_k\}$ is a **sequence** of real numbers so that $\lim_{k\to\infty} (a_{k+1} - a_k) = 0$, then $\{a_k\}$ must converge.