Q 1. Write out all the details to prove 
\( a = b \cdot a \cdot b \), so \( x : x^2 < z^2 \) then 
\( a^2 = 2 \).

Q 2. The integers \( \mathbb{Z} \) are not well ordered for the usual order. Give them a different order in which they are well ordered.

Q 3. If \( \lim_{n \to \infty} a_n = a \) and \( \lim_{n \to \infty} \frac{a_n}{n} = b \)

Show \( a = b \).

Q 4. If \( \lim_{n \to \infty} a_n = a \), and \( \lim_{n \to \infty} b_n = b \)

Show \( \lim_{n \to \infty} a_n \cdot b_n = ab \).