1. Determine the limit of the sequence
   
   (a) \( f(n) = \frac{n + 1}{3n - 1} \)
   
   (b) \( c_n = 175 \)
   
   (c) \( f(n) = \frac{1 - n^2}{n^3 - n + 1} \)
   
   (d) \( a_n = -\frac{n}{\sqrt{n^2 + 1}} + 3 \)
   
   (e) \( a_n = \sqrt{n^2 - 1} \)
   
   (f) \( f(n) = \frac{1 + n^5}{n^2 - n^5} \)
   
   (g) \( g(n) = \frac{\sqrt{9n^6 - n}}{n^3 + 1} \)
   
   (h) \( b_n = \frac{n - n\sqrt{n}}{2n^{3/2} + 3n - 5} \)
   
   (i) \( h(n) = \frac{(-1)^n}{n} \)

2. Find a formula for the general term \( a_n \) of each sequence, assuming that the pattern of the first few terms continues. Determine whether the sequence is geometric or arithmetic, and if it is, write it in the standard form.

   (a) \( \left\{ \frac{1}{2}, -\frac{4}{3}, -\frac{9}{4}, -\frac{16}{5}, -\frac{25}{6}, \ldots \right\} \)
   
   (b) \( \{5, 8, 11, 14, 17, \ldots \} \)
   
   (c) \( \left\{ 1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \frac{1}{81}, \ldots \right\} \)
   
   (d) \( \{-3, 2, -\frac{4}{3}, -\frac{8}{9}, -\frac{16}{27}, \ldots \} \)

3. True or False? If true, explain why. If false, explain why or give an example that disproves the statement.

   (a) If a subsequence of a sequence is convergent with limit \( L \), then the original sequence is also convergent with limit \( L \).
   
   (b) If a sequence is convergent with limit \( L \), then any subsequence is also convergent with limit \( L \).
   
   (c) If \( \{a_n\} \) and \( \{b_n\} \) are divergent, then \( \{a_n b_n\} \) is divergent.