1. Assume (1) \( x_n > 0 \) for all \( n \) and (2) \( \lim(x_n) = \infty \). Show that \( \lim\left(\frac{1}{x_n}\right) = 0 \).

2. Assume (1) \( \lim(x_n) = \infty \) and (2) the sequence \( (y_n) \) is bounded. Show that \( \lim(x_n + y_n) = \infty \).