(1) Show, according to the formal definition of limit, that if

\[ a_n = \frac{2n^2 + n}{n^2 + 2n - 10} \]

then \( \lim_{n \to \infty} a_n = 2 \).

(2) Prove the subtriangle inequality: \( | |x| - |y| | \leq |x - y| \).

(3) Prove, according to the formal definition of limit, that if \( \lim_{n \to \infty} a_n = L \) and \( \lim_{n \to \infty} b_n = M \) then \( \lim_{n \to \infty} (a_n + b_n) = L + M \). (In words, the limit of the sum is the sum of the limits.) Hint: the triangle inequality implies that \( |(a_n + b_n) - (L + M)| \leq |a_n - L| + |b_n - M| \).