Checking for Stability

Problem: given an nth-degree polynomial

$$p(s) = s^n + a_1 s^{n-1} + a_2 s^{n-2} + \ldots + a_{n-1} s + a_n$$

with real coefficients, check that the roots of the equation $p(s) = 0$ are strictly stable (i.e., have negative real parts).

Terminology: we often say that the polynomial p is (strictly) stable if all of its roots are.