Exercises

E17.16 [1D7] Let $p(x) = a_n x^n + a_{n-1} x^{n-1} + ... + a_0$ a polynomial with all real roots and coefficients all non-zero. Show that the number of positive roots (counted with multiplicity) is equal to the number of sign changes in the sequence of coefficients of p. *[Hint. Use induction on n, using the fact that between two consecutive roots of p there exists a root of p'.]* This result is known as *Descartes' rule of signs*. [1D8]