**Computer Problem 5.**

(a) Use the addition formulas for sin and cos to prove that $\tan(\pi/2 - x) = 1/\tan x$.

(b) Show that $[0, \pi/4]$ can be used as a fundamental domain for $\tan x$.

(c) Design a tangent key, following the principles of Program 3.3, using degree 3 polynomial interpolation on this fundamental domain.

(d) Empirically estimate the maximum error of the tangent key in $[0, \pi/4]$.

*Solution.*