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Gabor Hetyei* (ghetyei@uncc.edu), Department of Mathematics and Statistics,
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for tangent and secant.*

Inspired by the recently discovered relation between the Tchebyshev polynomials and the derivative polynomials for secant that arises in the study of Tchebyshev transforms of posets, we show that the roots of the derivative polynomials for tangent and secant are all distinct, pure imaginary, located between $-i$ and i , and interlaced. The proof uses combinatorics and analytic results related to the argument principle. We will also discuss some generalizations of our statement and the techniques used in its proof. (Received September 04, 2006)