1023-Z1-585   **Rick Kreminski*** (`kremin@boisdarc.tamu-commerce.edu`), Department of Mathematics, Texas A&M University - Commerce, Commerce, TX 75429. π *to (hundreds of) thousands of digits, from Vieta's formula.*

Vieta's venerable infinite product formula for π, using nested radicals of 2, has been around for hundreds of years. In the late 16th century, Vieta himself used it to deduce π to 9 digits past the decimal. Surprisingly, its convergence can be dramatically accelerated, and this may not have been known before. Perhaps this is simply because it appears in the form of an infinite product, something that is relatively rarely encountered. We first show what Vieta's formula is, and how it can be used to compute π to several hundred thousand digits on a typical PC. The prerequisites for this talk are the half-angle formulas from trigonometry, and knowledge of the Taylor series for the sine function - the material is fully accessible to first-year students. (Received September 18, 2006)