Michigan Math Club

Thursday at 4pm in the Commons
Free Pizza and Pop

The Leibniz Series and Nonlinear Sequence Transformations

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Abstract for 4 December

The Leibniz series π/4 = 1 - 1/3 + 1/5 - 1/7 + 1/9 - … converges very slowly. An estimate of π using terms until and including 1/9 will have an error of about 0.4. However, the sequence 1, 1 - 1/3, 1 - 1/3 + 1/5, … has much more information in it than might appear at first sight. Using just the first five terms of that sequence and a nonlinear sequence transformation, one can deduce the value of π to 9 digits of accuracy, as we will explain.