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Arthur J Rosenthal* (arosenthal@saalemstate.edu), Salem State University, 352 Lafayette St., Math Dept., Salem, MA 01970-5353. *Using Octave (a freeware version of Matlab) to generate close calls for Fermat's last theorem.* Preliminary report.

This talk will demonstrate how a program written in Octave (a freeware version of Matlab) can be used to generate natural numbers $n > 2$, a , b and c such that $\text{fl}(a^n + b^n) = \text{fl}(c^n)$, where $\text{fl}(x)$ is the floating-point representation of x on a computer. Although Fermat's Last Theorem has been proven by Wiles to show that there are no natural number solutions for $n > 2$, a , b and c such that $a^n + b^n = c^n$, this Octave program shows there are many "close calls" such as the example $\text{fl}(18494^5 + 33025^5) = \text{fl}(33381^5)$ on a TI-84 graphing calculator. This talk will also discuss the conjecture that for any $\epsilon > 0$ and natural number $n > 2$, there exist natural numbers a , b and c such that $|a^n + b^n - c^n|/c^n < \epsilon$. (Received September 22, 2011)