HW 0 Report

In this assignment, we're tasked with creating a program that approximates the value of π via the sum

$$\pi = \sum_{n=0}^{\infty} 16^{-n} \left(\frac{4}{8n+1} - \frac{2}{8n+4} - \frac{1}{8n+5} - \frac{1}{8n+6} \right).$$

The submitted .f90 file, "pi_approx.f90," does this. The program also prints the iteration count associated with the requested four differing threshold values. For good measure, a table with the data is below.

Threshold	Iterations	Approximation
1.00E-04	N=3	3.14158739034658
1.00E-08	N=5	3.14159264546033
1.00E-12	N=8	3.14159265358897
1.00E-16	N=11	3.14159265358979

In conclusion, there is no surprise that the smallest threshold value results in the most iterations, but also the most accurate approximation of π.