Approximating pi with an infinite series 

Epsilon< First Omitted # of Terms % Error

10^(-3) 0.000999750062484 2000 0.0159154933%

10^(-6) 0.000000999999750 2000000 0.0000159155%

10^(-9) 0.000000001000000 2000000000 0.0000000160%