

MAPLE PROJECT 5
Due December 12, 2007
Extra credit

Problem 1. Show that $\sum_{n=1}^{\infty} \frac{3n^2 - 2n - 11}{n^4 + 4n^3 + 6n^2 + 4n + 5}$ is a telescoping series, and find its sum. Hint: use partial fractions.

problem 2. For what values of the constant a does the series $\sum_{k=1}^{\infty} \frac{a^k (k+1)^{2k}}{(2k+1)!}$ converge?

problem 3. For the following function plot the function along with Maclaurin polynomials of degree $n = 4$, $n = 6$, and $n = 8$ on the same coordinate system. Compare the graphs and explain the relationship between the graph of Maclaurin polynomials and the original function.

$$f(x) = \sin(x^2)$$