

MATH 126 SPRING 2011, QUIZ 12

You may assume that $\ln(1+x) = \sum_{n=0}^{\infty} (-1)^n \frac{x^{n+1}}{n+1}$, for $|x| < 1$.

(1) Find the Maclaurin Series for $f(x) = \frac{\ln(1+x^4)}{x^2}$.

(2) What is $f^{(18)}(0)$?

(3) Evaluate $\int_0^{0.5} f(x)dx$ as a power series.

(4) Approximate $g(x) = x^{1/3}$ by its Taylor polynomial of degree 3 at $a = 1$.

(5) Use Taylor's formula to estimate the accuracy of this approximation (from part (4)) at $x = 0.5$ (it is not necessary to simplify your answer).