

Homework4

1. Find the nth Maclaurin polynomial for the function.

$$f(x) = \frac{1}{1-x}, n = 5$$

2. Use the power series $\frac{1}{1+x} = \sum_{n=0}^{\infty} (-1)^n x^n, |x| < 1$ to find a power series for the function, centered at 0, and determine the interval of convergence.

$$f(x) = \ln(x^2 + 1)$$

3. Use the definition of Taylor series to find the Taylor series, centered at c, for the function.

$$f(x) = \ln x, c = 1$$