Worksheet 9, Math 1B
Taylor and Maclaurin Series

Monday, March 12, 2012

1. Find the Taylor series for \( f(x) = x^4 - 3x^2 + 1 \), centered at \( a = 1 \) and \( a = 0 \).

2. Find the Taylor series for \( f(x) = e^x \), centered at \( a = 3 \).

3. Find the Maclaurin series for \( e^x + e^{2x} \).

4. Find the Maclaurin series for \( \cosh(x) \) by manipulating known series. Compare the series you find with that for \( \cos(x) \).

5. How many terms of the Maclaurin series for \( \sin x \) do you need to add together in order to compute \( \sin 3^\circ \) correct to five decimal places?

6. Find the Maclaurin series for \( \sin^{-1} x \). [Hint: Consider the Maclaurin series for \( \frac{d}{dx} \sin^{-1} x \).]