

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 $\frac{d}{dx} \sin^{-1} x$.]