Written Assignment #11:
Power Series and Radius of Convergence
Due 5:00pm Tuesday, April 27, 2004

You are encouraged to collaborate with your colleagues. For credit, however, your final write-up must be done individually. Show all your work and make your presentation comprehensible.

1. Determine the radius of convergence for each of the following power series.

(a) \[ \sum_{n=1}^{\infty} \frac{x^{3n+2}}{n} \]

(b) \[ \sum_{n=0}^{\infty} \frac{n}{4^n} x^{2n} \]

(c) \[ \sum_{n=1}^{\infty} \frac{(x - x_0)^n}{n}, \text{ where } x_0 \text{ is a given number.} \]

2. Determine the Taylor series about the point \( x_0 \) for each of the following functions. Also determine the radius of convergence.

(a) \( \frac{x}{2-x} \), \( x_0 = 0 \).

(b) \( \frac{x}{2-x} \), \( x_0 = 7 \).