

MATH 2425, Calculus 2
Midterm 2 Review Activity: Week of 19 October 2009

1. For the following series determine the interval of convergence.

$$\sum_{n=0}^{\infty} \left(\frac{x-1}{2} \right)^n$$

A. $-1 < x < 1$ B. $0 < x < 2$ C. $-1 < x < 3$ D. $-2 < x < 2$ E. none of the above

2. Determine if the following series converges conditionally, converges absolutely, or diverges.

$$\sum_{n=1}^{\infty} (-1)^n \frac{(n^2 + 1)^{2/3}}{n^2}$$

A. Conv Absolutely B. Conv Conditionally C. Div D. Both A & C E. None of the Above

3. Determine the radius of convergence of the following power series.

$$\sum_{n=0}^{\infty} \frac{(2x-1)^{2n-2}}{(2n+1)2^n}$$

A. 0 B. $\frac{1}{\sqrt{2}}$ C. 1 D. $\sqrt{2}$ E. ∞

4. Compute the 3rd order Taylor polynomial of $f(x) = \sin(x^2)$ at $x = \pi/4$.