

Problem Set 6 Calculus 2 Due 3/25/2005

You are encouraged to work in groups of two to four on this assignment and make a single group submission. Each problem is worth 5 points. For full credit indicate clearly how you reached your answer. All work must be legible and submitted on clean paper without ragged edges.

1. a) Find the Taylor polynomials of degree 5 and 7 for the function $f(x) = \arctan x$.
b) Use the polynomials from part a) to approximate $\arctan(0.1)$, $\arctan(1)$, and $\arctan(2)$.
2. a) Find the radius and interval of convergence of the Taylor series for $f(x) = \arctan x$.
b) Explain what your answer in part a) says about the accuracy of the values you found in 1. b).
3. a) Find the Taylor polynomials of degree 4 and 6 for the function $f(x) = \cos x$.
b) Use the polynomials from part a) to approximate $\cos(0.1)$, $\cos(1)$, and $\cos(2)$.
4. a) Find the radius and interval of convergence of the Taylor series for $f(x) = \cos x$.
b) Explain what your answer in part a) says about the accuracy of the values you found in 3. b).

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