

Fourth Exam

Monday, March 30, 2009

This exam is closed book. Make sure your name is on all pages. Show all work, and show it in a logical and organized manner. The first problem is worth 30 points, while the second problem is worth 70 points. You may keep this exam sheet.

1. Write down the terms up to and including degree 5 for the Taylor series for $f(x) = \cos(x)$, centered at $x_0 = \pi/2$.
2. Find terms, up to and including degree 5, of the series solution to the initial value problem

$$y'' + x^2y = 0, \quad y(0) = 1, \quad y'(0) = 2.$$