

Third Exam

Thursday, April 12, 2018

This exam is closed book, but you may use calculators. Make sure your name is on all pages. Show all work, and show it in a logical and organized manner. (Do it carefully, and check it.) Each each problem is worth 50 points.

Find the terms up to and including degree 5 of the power series solutions to the following initial value problems. Write the solution approximations as polynomials of degree 5.

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

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