

Math 320 (Smith): Problem Set 9

Due Tuesday, November 8, 2011

1. EP Section 5.1: 32, 34, 42, 48
2. Given one solution $y_1(x)$ to the ODE: (i) verify that $y_1(x)$ is a solution to the given ODE, and (ii) use the method of Reduction of Order to find the general solution:

$$x^2y'' - 4xy' + 6y = 0, \quad x > 0, \quad y_1 = x^2$$

$$4x^2y'' - 4xy' + 3y = 0, \quad x > 0, \quad y_1 = x^{1/2}$$

$$x^2y'' + xy' + y = 0, \quad x > 0, \quad y_1 = \cos(\ln(x))$$

3. EP Section 5.2: 12, 16, 23, 28, 30
4. EP Section 5.3: 9, 16, 23, 26, 35, 38, 40, 49