

MAP 2302 WRITTEN HOMEWORK #10

Due Monday November 4th, in Canvas

Question 1. Consider the differential equation $x^2y'' + 5xy' + 4y = 0$. By substituting a proposed solution of the form $y = x^r$ (and its derivatives), show that r must be -2 .

Question 2. Consider the differential equation $x^2y'' + 5xy' + (4 + x)y = 0$. If x is near 0, this resembles the equation in Question 1. Find the first five terms of a solution that looks like x^{-2} times a power series.