

Name:

ID:

MATH 202

Term 072

QUIZ 4

1) Find the **recurrence relation** of the given differential equation about the ordinary point $x = 0$. $y'' - xy = 0$ [DONOT SOLVE THE PROBLEM]

2) Find two power series solutions of the given differential equation about the ordinary point $x=0$. $y'' + x^2y = 0$ (Show all your work)

[given that $2c_2 = 0, \quad 6c_3 = 0,$
 $(k + 2)(k + 1)C_{k+2} + C_{k-2} = 0, \quad k = 2, 3, 4, 5, \dots$ is the recurrence relation]