

Homework 8

1. Solve the differential equations

$$y'' - 3xy = 0,$$

$$y'' - 2xy' + y = 0,$$

$$(x - 1)y'' + y' = 0.$$

2. Solve the initial value problems

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

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