

Homework 5

1. Use the power series method to solve the following differential equations

$$\begin{aligned}y'' - y' &= 0, \\y'' + xy' + 2y &= 0.\end{aligned}$$

Find the first four terms explicitly.

2. Use the power series method to solve the initial value problems

$$\begin{aligned}y'' + 2y &= 0, & y(0) &= 1, & y'(0) &= 1, \\y' + xy &= 0, & y(0) &= 3, \\y'' + xy' + y &= 0, & y(0) &= 1, & y'(0) &= 0.\end{aligned}$$