

5.2: Using Power Series to Solve IVPs

Examples:

$$y'' + y = 0, y(0) = 1, y'(0) = 0$$

Use a power series to write out the first 6 terms of the solution to $y'' + xy' + 3y, y(0) = 1, y'(0) = 2$. Also give a general form of the series solution (without initial conditions).

Find the recurrence equations and the first four nonzero terms of the power series solution to $(x^2 + 1)y'' + 10xy' + 8y = 0, y(0) = 1, y'(0) = 0$.