

Problem 5

In each of Problems 5 through 8, determine a lower bound for the radius of convergence of series solutions about each given point x_0 for the given differential equation.

$$y'' + 4y' + 6xy = 0; \quad x_0 = 0, \quad x_0 = 4$$

Solution

The coefficient of y'' is 1. Evaluating it at $x = 0$ or $x = 4$ results in a nonzero number, 1, which means the radius of convergence is ∞ in both cases.