

6.4: Problems

? Problem 6.4.1

Solve the following differential equation

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

using 1) the separation of variables method and 2) the power series method, and prove that the two solutions are mathematically equivalent.

? Problem 6.4.2

Solve the following differential equation

$$y''(x) - y(x) = 0$$

using 1) the method we have learned for second order ODEs with constant coefficients and 2) the power series method, and prove that the two solutions are mathematically equivalent.

? Problem 6.4.1

Solve the Laguerre equation with $n = 2$ and $n = 3$. Write down $L_2(x)$ and $L_3(x)$

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