

Worksheet 1/9/2026

1) Show that $x = e^{-2t}$ is a solution to $x'' + 4x' + 4x = 0$.

2) Is $y = x^3$ a solution to $x^2y'' - 2y = 0$?

3) Show that $x = C_1e^{-t} + C_2e^{2t}$ is a solution to $x'' - x' - 2x = 0$. Find C_1 and C_2 such that the solution x satisfies the initial conditions $x(0) = 10$ and $x'(0) = 0$.