

## Problem Set 10.2

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Solve the following differential equations.

1.  $y''' + 4y'' + 8y' = e^{-2x} \cos(2x) + xe^{-x} - x$
2.  $y^{(4)} - 3y''' = 0, \quad y(0) = 1, y'(0) = 3, y''(0) = 0, y'''(0) = 1$
3.  $y'' - 8y' + 20y = e^{4x} \cos(2x), \quad y(0) = 0, y'(0) = 1$
4.  $y''' + 9y' = x^3 - x - \cos(3x), \quad y(0) = 0, y'(0) = 0, y''(0) = 0$