

4. [15 points] Find explicit, real-valued solutions for each of the following, as indicated. Do **not** use Laplace transform techniques on this problem.

a. [8 points] Find the general solution to $y'' + 2y' + 4y = e^{-t} + t^2$.

b. [7 points] Solve $y'' + 5y' + 4y = 3 \cos(2t)$, $y(0) = 0$, $y'(0) = 1$