MATH 2070 HOMEWORK 7

1. Find the general solutions the following ODEs
   (a) $y''' - y'' - y' + y = 2e^{-t} + 3$
   (b) $y^{(4)} - y = 3t + \cos t$
   (c) $y''' + y'' + y' + y = e^{-t} + 4t$
   (d) $y''' - y' = 2\sin t$
   (e) $y^{(4)} - 4y = t^2 + e^t$
   (f) $y^{(4)} + 2y'' + y = 3 + \cos 2t$
   (g) $y^{(6)} + y''' = t$
   (h) $y^{(4)} + y''' = \sin 2t$
2. Determine the final ansatz of the particular solution for the following ODEs.
   (a) $y''' - 2y'' + y' = t^3 + 2e^t$
   (b) $y''' - y' = te^{-t} + 2\cos t$
   (c) $y^{(4)} - 2y'' + y = e^t + \sin t$
   (d) $y^{(4)} + 4y'' = \sin 2t + te^t + 4$
   (e) $y^{(4)} - y''' - y'' + y' = t^2 + 4 + t\sin t$
   (f) $y^{(4)} + 2y''' + 2y'' = 3e^t + 2te^{-t} + e^{-t}\sin t$