

## HOMEWORK 17

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 template of the particular solution for the following ODEs and use Maple to solve it.

(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)  $y^{(4)} + 2y''' + 2y'' = 3e^t + 2te^t + e^t \sin t$