MA 226 Worksheet
Second order equations (4)

Find the general solution to the following second order linear differential equations:
1.) $y'' + 5y' + \frac{75}{2}y = 2\cos\frac{5}{2}t$
2.) $y'' + 3y' + 12y = t^3 - 1$
3.) $y'' + 4y' + 20y = \pi e^{-2t}\cos 4t$
4.) $y'' + 16y = \sin 4t$
5.) $y'' + 10y' + 2y = 4$
6.) $y'' + 6y' + 5y = 3e^{-t}$
7.) $y'' + 12y' + 3y = \sin 3t + \cos 3t$
8.) $3y'' + 6y' + 3y = -e^{-t}$
9.) $y'' + 16y' + 64y = t^2 + 1$

Find the solutions to the following initial value problems and graph their solutions:
10.) $y'' + 5y' + \frac{75}{2}y = 2\cos 2t$, $y(0) = 0$, $y'(0) = 1$.
11.) $y'' + 3y' + 12y = 5$, $y(0) = 3$, $y'(0) = 1$.
12.) $y'' + 5y' = \cos 10t$, $y(0) = -4$, $y'(0) = 4$.