Math 331.2: Homework 7 (Section 3.5)

For the following problems find a *particular solution*

1. $y'' - 2y' - 3y = 5e^{2t} - e^{t}$.

2. $y'' - 2y' - 3y = \sin(2t)$.

3. $y'' - 2y' - 3y = e^{t}\sin(t)$.

4. $y'' - 2y' - 3y = t^2 + 2$.

5. $y'' - 2y' - 3y = e^{3t}$.

6. $y'' - 2y' - 3y = te^{t}$.

For the following problems find the *general solution.*

7. $y'' + 6y' + 9 = t^2 + \sin(t)$.

8. $y'' + 4y = 5e^{3t}$.

9. $y'' - 6y' + 25y = 5t$.

For the following problems solve the *initial value problem* and *sketch the graph of the solution.*

10. $y'' + y' - 2y = \sin(t)\,,\ y(0) = 5, y'(0) = -1$.

11. $y'' + 4y' = 2e^{-2t} - 3e^{-3t}\,,\ y(0) = 0, y'(0) = -2$.

12. $y'' + 6y' + 13y = 5t\,,\ y(0) = 2, y'(0) = 9$.