Homework III

1. First consider the homogeneous ODE:

$$\frac{d^{2}x}{dt^{2}}+3\frac{dx}{dt}+3x=0$$

1. Find the general solutions $x\_{h}$ of this ODE.
2. Consider the inhomogeneous ODE:

$$\frac{d^{2}x}{dt^{2}}+3\frac{dx}{dt}+3x=12e^{-2t}$$

Find one solution. Hint: $x∝e^{-2t}$ would work.

1. Find the general solutions $x\_{inh}$ of the inhomogeneous ODE.
2. Assume the initial condition $x\left(0\right)=0,\frac{dx}{dt}\left(0\right)=0$, find the solution $x\left(t\right)$.

2.

