Homework 3: due 02/02/18
EE 324: Signals and Systems II

1 Continuous time systems

Compute the impulse response of the following systems as well as the outputs with inputs $x(t) = e^{-t}$ and zero initial condition $y(0) = 0$.
1. $\dot{y}(t) = x(t)$
2. $\dot{y}(t) - y(t) = x(t)$

2 Discrete time systems

Compute the impulse responses of the following systems as well as the outputs with inputs $x[k] = 1$.
1. $y[k] - 0.6y[k - 1] = 2x[k]$ 
2. $y[k] - 0.3y[k - 1] - 0.4y[k - 2] = x[k]$ 

3 Laplace transform

1. $x(t) = u(t) + e^{-t}$
2. $x(t) = e^{-t+1} \sin(t)$