# ECE 311 - Homework #13

Forced Response with LaPlace Transforms

Assume zero initial conditions. Find the solution to the following differential equations

1) $\frac{dy}{dt} + 7y = x$ $\qquad x(t) = 10u(t)$

2) $\frac{d^2y}{dt^2} + 6\frac{dy}{dt} + 5y = x$ $\qquad x(t) = 10u(t)$

3) $\frac{d^2y}{dt^2} + 2\frac{dy}{dt} + 10y = x$ $\qquad x(t) = 10e^{-3t}u(t)$

4) $\frac{d^3y}{dt^3} + 6\frac{d^2y}{dt^2} + 11\frac{dy}{dt} + 6y = x$ $\qquad x(t) = 10\cos(3t)u(t)$