

## **Prelaboratory Exercise 2**

### **Objective**

In this Prelab you will familiarize yourself with the characteristics of first order systems.

### **Assignment**

The transfer function of a first order differential equation with zero initial conditions can be written as:

$$H(s) = \frac{Y(s)}{U(s)} = \frac{K}{\tau s + 1}.$$

1. Let  $u(t)$  be a unit step input. Find  $y(t)$  by taking the inverse Laplace of your transfer function. Sketch  $y(t)$  and label  $\tau$ ,  $2\tau$ , and  $K$  on the figure.