EECS 360
Homework #5

1. Section 3.5 Participation Activities
    3.5.1: Convolution properties.
    3.5.2: Convolution of two delayed rectangular pulses, using the properties.
    3.5.3: Convolution properties.
    3.5.4: Common convolutions.
    3.5.5: Using convolution properties.
    3.5.6: Finding the area under a decaying exponential curve

2. Let $h(t) = \text{rect}\left(\frac{t-15}{2}\right)$ and $x(t)=\text{rect}\left(\frac{t-10}{2}\right)+\text{rect}\left(\frac{t+10}{2}\right)$, find $h(t)*x(t)$ and plot.

3. Exercise 3.5.1

4. Exercise 3.5.4

5. Let $x(t) = 3\text{rect}(t-1)$ and $h(t)=4\,\text{rect}(t-2)e^{0.8\,t}$.

    a. $h(t)$ is a stable system, TRUE or FALSE
    b. $h(t)$ is a causal system, TRUE or FALSE
    c. Find $h(t)*x(t)$ and plot.

6. Let $x(t) = \sum_{n=-\infty}^{\infty} \delta(t-n)$ and $h(t) = \text{tri}\left(\frac{t}{.25}\right)$, find $h(t)*x(t)$ and plot. Is $y(t)$ periodic, if so what is the period.

7. Section 3.6 Participation Activities
    3.6.1: BIBO stability and causality.
    3.6.2: BIBO stability.
    3.6.3: BIBO stability for complex exponential (sinusoidal) signals.

8. Exercise 3.6.1

9. Exercise 3.6.6