Assignment (due Nov. 14)

1. Problem 6.15 from the textbook
2. Problem 6.29 from the textbook
3. (a) Consider periodic function $v(t)$ with period $T = 0.5$ and defined over $[0, 0.5]$ as
   
   $$v(t) = 2 - 8t.$$  
   
   Compute the Fourier series coefficients for $v(t)$.

   (b) $v(t)$ above is the input to the filter circuit shown in Fig. P6.2 in the textbook, and we are interested in the response of the circuit to only the first three Fourier components of $v(t)$. Determine $v_{out}(t)$ for the first three Fourier components of $v(t)$, and plot the input and output waveforms on the same graph.