EECS 360
Homework #7

1. Section 4.1 Participation Activities
   - 4.1.1: Time to phasor domain transform examples.
   - 4.1.3: Phasor technique to solve differential equations having sinusoidal inputs.
2. Challenge activity
   - 4.1.1: Phasor-domain technique.
3. Exercise 4.1.1
4. Exercise 4.1.5
5. Section 4.2 participation activity
   - 4.2.1: Fourier series analysis technique.
6. Section 4.3 participation activity
   - 4.3.1: Fourier series harmonics
7. Section 4.4 participation activity
   - 4.4.2: Sine/cosine Fourier series for sawtooth wave.
   - 4.4.3: Line spectra of triangle wave.
   - 4.4.4: Amplitude/phase Fourier series for sawtooth wave.
   - 4.4.5: Fourier series coefficients. .
   - 4.4.8: Effect of number of Fourier terms used to represent a signal.
8. For $x(t) = 8\cos(300\pi t)-3\sin(600\pi t)$ find

   a. sinc/cosine Fourier series representation of x(t), a_0, a_n and b_n

   b. amplitude/phase Fourier series representation of x(t), c_0, c_n, ϕ_n

   c. complex exponential Fourier series representation of x(t), x_n

   Hint: $\sin(\theta) = \cos\left(\theta - \frac{\pi}{2}\right)$ and $-\sin(\theta) = \sin(\theta+\pi)=\cos\left(\theta + \frac{\pi}{2}\right)$
9. Exercise 4.4.3
10. Exercise 4.4.13
11. Exercise 4.4.14