

Homework #1

***Sinusoidal Signals***

Assigned on Friday, September 1, 2017

Due on Friday, September 8, 2017, by 12:30 pm via Canvas submission

*Late homework will not be accepted.*

**Reading:** McClellan, Schafer and Yoder, *Signal Processing First*, 2003, Sec 1.1 to 3.1.  
 Companion Web site with demos and other supplemental information: <http://dspfirst.gatech.edu/>  
 Web site contains solutions to selected homework problems from *DSP First*.

Office hours for Ms. Ghosh and Prof. Evans follow, as well as Prof. Evans' coffee/advising hours on Friday. Location of TA office hours and Ms. Ghosh's e-mail address are given on Canvas at

<https://cluster34-files.instructure.com/courses/1017~1202937/files/1017~42941474/course%20files/signals/homework/homework1.pdf>

and you must already be logged into Canvas at [canvas.utexas.edu](http://canvas.utexas.edu) for the above link to work.

<b><i>Time Slot</i></b>	<b><i>Monday</i></b>	<b><i>Tuesday</i></b>	<b><i>Wednesday</i></b>	<b><i>Thursday</i></b>	<b><i>Friday</i></b>
<b>9:00 am</b>			<b>Ghosh</b>		
<b>9:30 am</b>			<b>Ghosh</b>		
<b>10:00 am</b>			<b>Ghosh</b>		
<b>10:30 am</b>					
<b>11:00 am</b>		<b>Ghosh</b>		<b>Ghosh</b>	
<b>11:30 am</b>		<b>Ghosh</b>		<b>Ghosh</b>	
<b>12:00 pm</b>		<b>Ghosh</b>		<b>Ghosh</b>	Evans (EER cafe)
<b>12:30 pm</b>		Evans (EER 1.516)		Evans (EER 1.516)	Evans (EER cafe)
<b>1:00 pm</b>		Evans (EER 1.516)		Evans (EER 1.516)	Evans (EER cafe)
<b>1:30 pm</b>		Evans (EER 1.516)		Evans (EER 1.516)	Evans (EER cafe)
<b>2:00 pm</b>		Evans (EER 6.882)		Evans (EER 6.882)	
<b>2:30 pm</b>		Evans (EER 6.882)		Evans (EER 6.882)	
<b>3:00 pm</b>		Evans (EER 6.882)		Evans (EER 6.882)	

**1. Finding Parameters of a Sinusoidal Waveform from a Plot. 20 points.**

*Signal Processing First*, problem P-2.2, page 31

**2. Putting Euler's Formula to Use. 20 points.**

*Signal Processing First*, problem P-2.6, page 32

**3. Finding Parameters of a Sinusoidal Waveform from MATLAB Code. 20 points.**

*Signal Processing First*, problem P-2.8, page 32

**4. Time Delay Causes Phase Shift. 20 points.**

*Signal Processing First*, problem P-2.16, page 33

**5. Sum of Sinusoidal Signals. 20 points.**

*Signal Processing First*, problem P-3.1, page 64

Also complete the following part:

(d) Write MATLAB code to plot  $x(t)$  for three periods. Submit the MATLAB code and the plot it generates.

As stated on the course descriptor, "Discussion of homework questions is encouraged. Please be sure to submit your own independent homework solution."

NOTE: In your solutions, please put all work for problem 1 together, then all work for problem 2 together, etc.