EECS 451 FALL 2013 HOMEWORK 1   DUE SEPTEMBER 10

After a genuine attempt to solve the homework problems by yourself, you are free to collaborate with your fellow students to find solutions to the homework problems. Regardless of whether you collaborate with other 451 students, you are required to write your own solutions to hand in. Copying homework solutions from another student or from existing solutions will be considered a violation of the honor code. Finally, if you choose to collaborate, you must include the names of your collaborators on your submitted homework.

Please take advantage of the Piazza discussion forum on CTools and the professor's and GSI's office hours. We are all in this together.

1. (20 points) Fill out the Informed Participation form at the following link:
   Student Information Sheet and Statement of Informed Participation
   `http://tinyurl.com/lt9cfoa`

   The quizzes can be found at these links:
   The VARK questionnaire
   `http://www.vark-learn.com/english/page.asp?p=questionnaire`
   The Index of Learning Styles
   `http://www.engr.ncsu.edu/learningstyles/ilsweb.html`

2. (2 points each) Put each of the following in the form $A\cos(\omega t + \theta)$:
   (a) $4e^{jt} + 4e^{-jt}$
   (b) $-je^{2jt} + je^{-2jt}$
   (c) $(4 + 4j)e^{6jt} + (4 - 4j)e^{-6jt}$

3. (2 points each) Determine whether each of the following signals is periodic, and if so, determine the fundamental period.
   (a) $x[n] = 7\cos(5n + \pi/6)$
   (b) $x[n] = 7e^{j(n/6-\pi)}$
   (c) $x[n] = \cos(n/8)\cos(\pi n/8)$
   (d) $x[n] = \cos(\pi n/2) - \sin(\pi n/8) + 3\cos(\pi n/4 + \pi/3)$

4. (10 points) Textbook 2.30

5. (10 points) Textbook 2.35

6. (10 points) For graduate students only: Textbook 2.36

7. (Extra credit: 2 points each) Textbook problems 2.4, 2.5. These are warm-up problems with answers in the back of the book. Make sure you demonstrate how to get the answer.