Final Exam   Due Wednesday of Finals week by 3pm

#1 Answer the following questions as completely as you can:

   a. What was this course about?

   b. What did you learn that you didn't know before?

   c. How does the subject matter of this course relate to other courses you have had?

#2. In this course we focused most of our attention on the heat, wave and Laplace equations.

   a. What was the reason for this focus?

   b. Describe similarities and differences among these three equations

#3 We discussed Max-min principles, integral identities and energy integral arguments.

   a. What were these notions and what were they used for?

   b. To which equations did these notions apply?

#4 We learned about
   - eigenfunction expansions,
   - the Fourier transform
   - the Laplace transform

   for solving partial differential equations.
   Give examples of problems where these methods apply and illustrate
   why all of these methods are necessary

#5. We briefly studied the topic of distributions.

   a. give an example of a singular distribution and explain what that term means

   b. give an example of an operation that is not valid in the classical sense but is valid in the distributional sense

   c. why is distribution theory needed in the study of partial differential equations