REVIEW QUESTIONS, 15 APRIL 2013

ALEX MORIARTY

Question 1. Why do we transform our problem from the time domain to the frequency domain? Doesn't this side step away from the final solution add more work?
Answer. Because directly attacking the initial problem may be very difficult. If it is indeed easy then no transform is require; however the problem may be very difficult in the time domain but easier in the frequency domain. Since the transformation to the frequency domain is usually done using lookup tables or solvers, this step is not much added work. The work added is in the inverse transform back to the time domain. Since certain operations are much easier in the frequency domain, it still results in less work overall.
Question 2. If the Fourier Transform breaks a problem or signal into it's frequency components, what does the Laplace transform break the signal into components of?
Answer. The Laplace transform represents the original function in it's moment components.
Question 3. What is the best way to find a Laplace transform?
Answer.

(1) Tables *If you've memorized, or have access to a book or the internet.*
(2) Solvers *(MatLab, Maple, WolframAlpha... Hopefully before the exam python can be added to this list.)*
(3) Pen & Paper.

Date: April 21, 2013.