

EE-3032, HW-5b

Fourier Transform

These are problems for your practice only. You may certainly check with me for suggestions and hints if you get stuck. You do not need to submit them. They will not be graded. Please compare your solutions with some of your colleagues in the class and follow-up with me during office hours if you would like feedback on any of your solutions.

Problems from the Chaparro text:

- 5.2 (p. 383). This reiterates an example we did in class and goes a bit further.
- 5.3. This brings together some properties of even and odd functions and reuses some properties we derived for the Fourier Series in the Fourier Transform. There are a few ways to attack this problem. You could begin by applying the definition of the Fourier Transform to $x(t)$ to see what happens and then examine the properties of even and folded signals (key is that an even function is the average of itself and its folded version) and how they relate to Euler's formula (e.g., definition of cosine).
- 5.5. This is good practice using the properties of the Fourier transform, which are listed at the end of the chapter.