Physics 360/Math 360 TF 1:00 - 2:20 PM, Room: CST 225

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Assignment 5, some due March 18, some due March 29

1 Boas §7.2 Wave Review - Due March 18

Make sure you understand the following problems
1, 6, 7, 17, 21.
(You do not have to turn them in.)

2 Boas §7.4 Average Value - Due March 18

For your reference, these are Boas §7.4 problems #3, 4, 10

2.1

Find the average value of the function on the given interval. You may use equation 4.8 if it applies. It's well worth your time to make a quick sketch of the function, as you may be able to quickly see the average value. Especially when it's zero. If you find yourself spending more than 5 minutes on any one of these, please post to Piazza asking for hints, and then move on to the next one.

$$\sin x + 2\sin 2x + 3\sin 3x \qquad \text{on} \quad (0, 2\pi) \tag{1}$$

2.2

$$1 - e^{-x} \qquad \text{on} \quad (0, 1) \tag{2}$$

2.3

$$\cos x \qquad \text{on} \quad (0, 3\pi) \tag{3}$$

3 Boas §7.5 Fourier Series

3.1 - Due March 18

Problem §7.5.9 (also graph the sum of the first four non-zero terms using Python in addition to solving)

3.2 - This, and everything after it, due March 29

Problem 12.

3.3

For extra credit, you may do problem 13.

4 Boas §7.9 Even and Odd functions

The example that starts on page 367 is excellent. It shows expanding a given function as a Fourier sine series, a Fourier cosine series, and a Fourier series (that last one is typically taken to mean that you have both sine and cosine terms, or that you use the complex exponential version of Fourier series).

4.1

Read through that example, and then do problem §7.9.15. Please note that Boas gives you the answer so that you can check your work!