

Assignment #10

Note **quiz** announcement below.

Homework assignment #10 is due in lecture Friday, June 9. Be sure to try these problems before your discussion section!

Read Theorem 26 on p. 147 and Theorem 33 on p. 165—they are straightforward to use. These will probably be covered in lecture, but possibly not until Wednesday 10-W.

section	page	To do but not hand in	To hand in
§3.9	p. 149	1, 3, 5	2, 4, 6
§3.12	p. 167	1, 3, 5	2, 4, 6
§6.5	p. 388 ¹	1, 3, 9	2, 4, 10
	below	R-1	R-2

Quiz in section, Week 10 (June 6 and June 8):

Know these:

(a) For real-valued $f(t)$ of period 2π , be able to derive the relationship between the Fourier coefficients a_n, b_n we had before and the complex Fourier coefficients c_n for the case $n > 0$. (Lecture 9-W.)

(b) Be able to prove Bessel's inequality in the complex version, provided it's covered in lecture by Monday 10-M.

Problem R-1. Try the oscilloscope/synthesizer applet on the web at http://www.frontiernet.net/~imaging/play_a_piano.html using a computer with sound and a browser with Java enabled. It's a little buggy, but you can set different numbers of overtones, which is the same as saying how many terms of the Fourier series you want to use.

Problem R-2. For the example $f(t) = e^{\frac{1}{2}it}$ on $-\pi < t < \pi$, done in class, what does Bessel's inequality say? (In other words, just state Bessel, substituting in the actual values for the c_n and for the integral. Actually, both sides will be equal.)

¹We have been writing $f(t)$ instead of $f(x)$, but it's the same thing. Use whichever letter you wish.