

## SP352 HW #2

VS = “Introduction to Linear Vector Spaces” handout (with problems on pages 51 to 61)

FS = “Fourier Series: An Example of Characteristic Behaviors” handout

due Tuesday 22 Jan by 1200:

(a) VS #15—skip part *e*

(b) VS #5

(c) On pages 47–48 of the VS handout, the first four Legendre polynomials are computed. Follow the same procedure to obtain the fifth basis vector,  $P_4(x)$ .

(d) Do Discovery Exercise D1 on pages 53–54 of the FS handout in Mathematica. (The syntax on pages 55–57 should help.) Print out all of your computer work and annotate it by hand to explain what you did. You may help each other, but you each have to do it yourself; don’t photocopy someone else’s work!

Footnote on Mathematica: You can either run it in the PI room (or probably in the fishbowl, with Professor McIlhany’s help if necessary) or you can download the installer from

<http://intranet.usna.edu/IRC/software/softwareList.htm>

If you have a printing problem, you can always print to Adobe PDF, email the resulting file to yourself, and print it elsewhere. If you are new to Mathematica, I recommend you explore some of the resources and documentation in the splash screen that appears when you start Mathematica.