Multiple-page homework must be STAPLED when handed in.

Turn in starred problems Thursday 11/29/2007.

Section 17.7: 1 (1), (b), (c), (d)*, (f)*; 2 (c)*, (e); 7

Section 17.8: 2 (a), (b)*, 4*, 5*

Comments, hints, instructions: 1. In 17.7:1(a,b,c) you should recognize by inspection that the problem will lead to one of the series studied in Section 17.4. In (d) you will not be able to find the eigenvalues explicitly; give a graphical interpretation as was done in class or in Figure 3. Part (f) is again like one of the series from 17.4, but here because the interval is $[-1, 1]$ the form of the solutions will look different. Work (f) out from the beginning, showing exactly what the eigenvalues and corresponding eigenfunctions are.

2. 17.7:7 shows that innocent looking but nonseparated boundary conditions can lead to trouble.

3. For 17.8:4 you will need to read Example 3 in this section; see also the useful table of Legendre polynomials on page 213. 17.8:5 is like the radial equation that resulted from separation of variables in the problem (done in class) about the heat equation in a disk, and like Example 2 of this section.