

Turn in starred problems Tuesday 11/23/2010.

Section 17.8: 2 (a), (b)*, (d)*, (g), 5*

Comments, hints, instructions:

1. 17.8:2(d): This is the Legendre equation that we studied earlier (Section 4.4). The requirement that the solution be bounded at $x = 1$ requires that it be one of the Legendre polynomials (see problem 3.A on Assignment 3); the boundary condition at $x = 0$ picks out some of these. (These two considerations together determine the eigenvalues.) The text solution for 17.8:2(e) may be helpful. 17.8:2(g) is similar.

2. 17.8:5 is essentially the problem we encountered in studying the heat equation in a disk: a change of variables leads to Bessel's equation.