

Math 553 — Fall 2007 — Homework 9

Due: Monday 12 November, by noon.

- (1) McOwen 4.4.1.
- (2) McOwen 4.4.3.
- (3) McOwen 4.4.5.
- (4) McOwen 4.4.6 parts (a) and (b). Also, for $a = 1$ sketch a couple of the eigenfunctions (perhaps using the Mathematica command `ParametricPlot3D`).

Aside. For a nice introduction to Bessel functions, including information on how to evaluate integrals involving them, see G. F. Simmons *Differential equations, with applications and historical notes, 2nd ed.*

- (5) McOwen 4.4.7. Find a proof using Green's formulas, and a different proof using the maximum principle.