Homework Problems on the Green Function Method I
Spring 2011, Math 246, Professor David Levermore

1. Compute the Green functions associated with the following differential operators L.

   a) $\mathrm{L} = \mathrm{D}^2 + 8\mathrm{D} - 20$

   b) $\mathrm{L} = \mathrm{D}^2 + 8\mathrm{D} + 20$

   c) $\mathrm{L} = \mathrm{D}^4 + 13\mathrm{D}^2 + 36$

2. Use the Green function method to find a general solution of the following equations.

   a) $\mathrm{D}^2 y - \mathrm{D}y - 2y = \dfrac{1}{e^t + 1}$

   b) $\mathrm{D}^2 y + y = \tan(t)$

   c) $\mathrm{D}^2 y + y = \dfrac{1}{16 + 9\cos(t)^2}$