Homework Problems on the Green Function Method
Fall 2008, Math 246, Professor David Levermore

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

$$\text{a)} \quad L = D^2 + 4D - 5$$
$$\text{b)} \quad L = D^2 + 4D + 5$$
$$\text{c)} \quad L = D^3 + 4D$$

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

$$\text{a)} \quad D^2 y + Dy - 2y = \frac{1}{e^t + 1}$$
$$\text{b)} \quad D^2 y + y = \frac{1}{\cos(t)}$$
$$\text{c)} \quad D^2 y + y = \frac{1}{9 + 16\sin(t)^2}$$