PHYSICS 601

Homework Assignment 9

1. [Arfken pp. 738-739] Solve the integral equation

$$\phi(x) = x + \frac{1}{2}\int_{-1}^{+1}(t - x)\phi(t)dt$$

for $\phi(x)$ using the Neumann series method.

2. Explicitly exhibit the form of the resolvent kernel $\tilde{K}(x, t; \lambda)$ for the above equation.

3. [Arfken p. 792] Solve the equation

$$\phi(x) = x + \frac{1}{2}\int_{-1}^{+1}(t + x)\phi(t)dt$$

by the separable kernel method.