Homework Problems

1) Problems 2, 4, 6, 9 and 11 from section 4.3.

Practice Problems on 4.3

1. Consider the problem $u_{tt} = c^2 u_{xx}$ for $0 < x < l$ with $u(0, t) = 0$ and $u_t(l, t) = -ku_x(l, t)$. For the positive eigenvalues, find the equation that they satisfy.

2. Find the positive eigenvalues and eigenfunctions of the eigenvalue problem $X''''(x) = \lambda X(x)$ with $X(0) = X''(0) = X(l) = X''(l) = 0$.

3. Solve above problem but with $X(0) = X'(0) = X(l) = X'(l) = 0$