Problem Set 4: Some Search Questions
Due in Class, Wednesday, February 12, 2003

1. **Lucas and Search**

   On page 55 of *Models of Business Cycles*, Robert Lucas describes the following model:

   Consider an individual worker who begins a period with a job that pays him a wage $w$. He can either work a fixed number of hours, in which case he earns $w$, or search for another job, in which case he earns nothing [this period] and loses the option to work at this wage later. If he works, the same wage $w$ will be available to him next period with probability $1 - \theta$; with probability $\theta$ he loses the job, beginning the next period with a wage of 0. Search is modeled as taking a drawing [with replacement] from a fixed probability distribution $G(w)$ of wage offers. The worker’s objective is to maximize the expected present value of his earnings, discounted at the factor $\beta$.

   Let $v(w)$ be the value of this objective function for a worker who begins with wage $w$ and proceeds optimally.

   State the worker’s Bellman equation. Characterize the worker’s optimal policy.

2. Exercise 5.1, Ljungqvist-Sargent, page 114.

