Econ, Dynamic programming #2, Proof

OSM Lab instructor,John Stachurski

OSM Lab student, CHEN Anhua

Due Wednesday, July 5 at 8:00am

Proof

1. It's trivial to show that $Uw(y)$ is in $\mathbb{R}_+$ since u, β and w all belong to $\mathbb{R}_+$

2. Define $\rho(g, f) = \sup_{y \geq 0} |g(y) - f(y)|$. It's trivial to prove that $(\mathbb{R}_+, \rho)$ is a complete space.

3. Now we will prove that U is a contraction map and unique fixed point of U in $\mathcal{C}$