ECON4002 Popup quiz
Spring 2024

Write your name in the blank sheet.

Instructions

1. When everyone is ready to start, I will scroll down to the next page.
2. You cannot consult any materials.
3. You can write your answer either in English or in Korean.
4. You have 10 minutes to submit your answer.

Quiz on Nov 14 Consider the game below:

P1 \ P2	Left	Right
Up	2, 3	0, 0
Down	0, 0	X, 2

, where X is a number greater than 1.

(a) Find a mixed strategy Nash equilibrium where P1 plays U with probability $p \in (0, 1)$ and P2 plays L with probability $q \in (0, 1)$.

$\Rightarrow$ P1's expected payoff of choosing $U = 2q$

P1's expected payoff of choosing $D = (1 - q)X$

Thus, $2q = X - qX \Leftrightarrow q = \frac{X}{2+X}$.

P2's expected payoff of choosing $L = 3p$

P2's expected payoff of choosing $R = 2(1 - p)$

Thus, $3p = 2 - 2p \Leftrightarrow p = \frac{2}{5}$.

Therefore, $\{(U, \frac{2}{5}; D, \frac{3}{5}), (L, \frac{X}{2+X}; R, \frac{2}{2+X})\}$ is a mixed-strategy Nash equilibrium.

(b) In the mixed-strategy Nash equilibrium you found in (a), how do p and q change as X increases?

$\Rightarrow$ When X increases, p doesn't change, and q increases.