

Problem Set 6

1. Problem 1 is solved exactly the same way we solved the repeated prisoners dilemma in class. Find the critical discount factor such that cooperation is optimal.
2. Problem 2 is solved exactly the same way we solved the repeated prisoners dilemma in class. Find the critical discount factor such that cooperation is optimal.
3. This problem is similar to problems 1 and 2 though the discount factor is 1.0 and the probability that the game continues to the next round is 0.9.
4. For part (a), solve the monopolist problem (in terms of Q or P). For part (b), solve the static Bertrand game. Be sure to justify your answer. For part (c), equilibrium path payoffs (via cooperation) yields:

$$0.5 * \text{Monopoly Profits}(1 + \delta + \delta^2 + \dots) \tag{2}$$

What is the optimal deviation? If a player decides in one period to *DEVIATE* and not set the monopoly price, what would he *OPTIMALLY* do? Solve for the three payoffs (Monopoly, Deviation, and Punishment) to determine the critical discount factor. Show $\delta \geq 1/2$.

For part d, show $\delta \geq \frac{N-1}{N}$ where N is the number of firms in the industry.

5. N/A.