

Operations Research 2

Tutorial Sheet 3

1. Consider the chicken game

	A	B
A	(6,6)	(2,8)
B	(8,2)	(0,0)

Consider the infinitely repeated version of this game with a discount rate of ω . Let T be the strategy, play A until the other player deviates from A and then always play B. Find the values of ω for which (T, T) is a Nash equilibrium in this repeated game.

2. a) Consider the following symmetric Cournot game. Firm i produces x_i units and has costs $1000 + 2x_i$. The price when the total supply is x satisfies $p = 8 - \frac{x}{2000}$.

- i) Find the equilibrium levels of production, profits and price.
- ii) Find the level of production that maximises the sum of profits (assume that both firms produce).
- iii) Using your result from ii) derive the symmetric, collusive solution and the discount rates for which such collusion is stable.