

4109H: Game Theory, FALL 2006, Homework 1

Instructor: Sasha Vostroknutov

This homework is due on Thursday, September 21 at 4pm in class. All 2-player games have Player 1 choosing rows and Player 2 choosing columns.

1. (25 points) Gibbons 1.4
2. (25 points) Gibbons 1.8
3. (25 points) The demand for tobacco is given by

$$q = 100 - 10p$$

where p is the price per pound. However, there is a government price support program for tobacco that ensures that the price cannot go under \$0.25 per pound. Three tobacco farmers have each harvested 60 pounds of tobacco. Each has to make an independent decision on how much to ship to the market and how much to discard.

- a) Show that there are two Nash Equilibria, one in which each farmer ships the whole crop, and a second, in which each farmer ships 25 pounds and discards the rest.
4. (25 points) Find all pure and mixed strategy Nash Equilibria of the following game (Chicken):

| | | |
|------|--------|----------|
| | Turn | Go |
| Turn | -1, -1 | -6, 6 |
| Go | 6, -6 | -10, -10 |