

**Homework Assignment 2. Due: Thursday, February 3.**

1. (1 point) Name two properties that a good must satisfy to be classified as public good. Also give at least two examples of public goods and a few examples of goods that satisfy one property but not the other (at least one for each property).
2. (4 points) Consider two college roommates Tom and Jerry. They both demand the good called 'clean bathroom' (as opposed to 'not-so-clean bathroom'). The quantity in this case is expressed in terms of 'cleanness units' that are common to both Tom and Jerry. Instead of money the prices/costs are expressed in terms of hours spent cleaning the bathroom. The (inverse) demand functions are given by:  
$$P_T = 100 - 2Q_T; \quad P_J = 150 - 3Q_J;$$
and the marginal cost is given by  $MC = 90 = \text{const}$ .
  - a. First suppose that Tom and Jerry have separate bathrooms, i.e. the 'clean bathroom' should be considered private good. What is the efficient amount of 'cleanness' and hours spent cleaning in this case? Show all your work.
  - b. Now assume that Tom and Jerry share the same bathroom, so that now 'clean bathroom' is public good. What is the efficient amount of 'cleanness' and hours spent cleaning in this case? Show all your work.
  - c. Based on your results in part (b), comment if free-rider problem is present in this dorm-room?
3. (2 points) (Question 5 on page 77) It has been estimated that private prisons are about 10 percent cheaper, on a per prisoner basis, than public prisons. On this basis, would you recommend that prisons be privatized? If not, what other information would you require?
4. (1 point) Which commodities 'the commodity egalitarianism' refers to? Are all of these commodities public goods?
5. (2 points) Discuss whether the following activities can have externalities, and if so whether it is positive or negative externality:
  - a. Taking Econ 101 class.
  - b. Talking on the cell-phone during Econ 101 lecture.
  - c. Asking really good questions during Econ 101 lecture.
  - d. Cheating during Econ 101 final exam (assume that only relative (to other students) performance matters).