Extra problems to prepare for Second in-class examination ECON 537

Signaling efficiency through prices

Demand in the market can be summarized by the inverse demand function $p(q)=(100-2q)$. There is a single firm in the market and the cost of production of a good is $C(q)=\beta q$.

1- What is the equilibrium price?

2- Suppose you do not know the cost of production of the firm. What can you infer about it by observing the market price?

Suppose consumers refuse to buy the product if they know the firm is not efficient and assume there are two possible values for the marginal cost: 0 or 100. Is it possible for a firm with marginal cost 0 to signal it to consumers? How do firms with high cost behave and can consumers discriminate between firms?

Wages and tasks

The amount of time h you are spending to complete a task is not observable by your employer. However, the probability of completing the task is positively affected by h: formally if you spend h hours, the task is completed with probability $h/40$. The final outcome (completed or not) is observable by the manager, and you get a wage w^C (resp. w^{NC}) if the task is completed (resp. not completed). Moreover, if you work during h hours, you incur a disutility best approximated by $h^2/2$. The alternative is to be unemployed and get a payoff of 0. Given the contract offered by your manager, under which conditions do you accept to work for him? How many hours do you want to spend if you accept the contract? If the manager wants to induce you to accept the contract and work 20 hours, which payments should he specify?