

1011A HONORS EXAM SOLUTION KEY

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1. 15 POINTS

There are many ways in which the student might correctly interpret this question. Therefore, the grader must consider each test on its own. Points are rewarded for mathematical modeling, not for textual intuition.

- 5 points for a sensible, mathematical formalization of individual maximization that will help us understand the model in the question. Housing may or may not enter individual utility, and the returns on investments may or may not be stochastic.
- 5 points for solving the individual's maximization problem such that the model can deliver an answer to the question about returns being equal or unequal.
- 5 points for closing the model for the whole economy in some way.

2. 15 POINTS

- 5 points for writing down society's maximization problem in a coherent way that captures the externality.
- 8-10 points for showing, mathematically, that the socially optimal solution may not equal the market optimum.
- up to 2 points may be awarded for a reasonable discussion of externalities and the Coase Theorem.

3. 15 POINTS

- 5 points for writing down the appropriate maximization problem with a subsidy and externality.
- 5 points for demonstrating mathematically that the optimum can be achieved.
- 5 points for demonstrating that there are other solutions - the most obvious is a tax on the non-housing investment opportunity.

4. 15 POINTS

- 5 points for modeling housing producers in some way. If the student has already done this in previous sections (which is very unlikely), some points can be allocated from that.
- 5 points for solving the model when competitive developers build houses until price falls to cost of construction.
- 5 points for demonstrating an economic difference between the two cases.