

**Exercises:**

1. *Adapted from Börgers (2015)*. In the problem of pricing a single indivisible good (section 1.2 in the lecture slides), assume that the buyer's type is drawn uniformly from the interval  $[0, 1]$ . Consider the following two-stage mechanism: In stage one the seller posts a price  $p_1 = 3/8$ . Then the buyer decides whether to buy or not to buy. If the buyer buys, the game is over. If he does not buy, then a third party draws a price  $p_2$  randomly from the interval  $[0, 1]$ , using the uniform distribution. The buyer can then either buy or not buy at the random price. Find the buyer's optimal strategy for this mechanism. Then find an equivalent direct mechanism in which truth telling is optimal for the buyer.
2. Reconsider the previous exercise. Assume that the seller chooses the price  $p_2$ , and not the third party. Holding the buyer's strategy fixed, which price  $p_2$  is optimal for the seller? How would the buyer react?
3. Solve Exercise 23.D.1 in Mas-Colell, Whinston & Green (1995).
4. Solve Exercise 23.B.2 in MWG.
5. Solve Exercise 23.B.4 in MWG.

**Literature:**

- Börgers (2015). *An Introduction to the Theory of Mechanism Design*. New York: Oxford University Press.
- Mas-Colell, Whinston & Green (1995). *Microeconomic Theory*. New York: Oxford University Press.