Exercise List 5: Auctions

Exercise 1. Consider a second-price sealed-bid action where there are n bidders whose values are iid according to a cdf F with support on $[0, 1]$. For each of the following scenarios calculate the seller's revenue, the bidders' payoff and the gross surplus in the equilibrium of the auction where bidders bid their value.

(1.1) $n = 3$ and $F(x) = x$.

(1.2) $n = 2$ and $F(x) = x^2$.

Exercise 2. Consider a first-price sealed-bid action (FPA) in which there are n bidders whose values are iid according to a cdf F with support on $[0, 1]$. For each of the following scenarios calculate the bidding strategy in the unique symmetric increasing differentiable equilibrium of the auction.

(2.1) $n = 3$ and $F(x) = x$.

(2.2) $n = 2$ and $F(x) = x^2$.

Exercise 3. For the auctions in exercises (1.1) to (2.2) calculate the reserve price that maximizes the seller's revenue.