ECO380: Markets, Competition, and Strategy — Winter 2025

Term Test Solution

Q1. **(25 pts)** Suppose the market demand is $Q^d = 900 - 10P$, with two types of firms—ten type-A firms, each with $MC_A(q) = 10 + q$, and ten type-B firms, each with $MC_B(q) = 20 + q$—all of which act as price takers (as in perfect competition), with each firm having a total cost function given by $TC_A(q) = 450 + 10q + \frac{q^2}{2}$ and $TC_B(q) = 100 + 20q + \frac{q^2}{2}$.

(a) (5 pts) What assumptions are needed for firms to be price takers? Find the short-run equilibrium price and quantity by using marginal cost.

Solution:

The following assumptions are needed for firms to be price takers: