

THE PENNSYLVANIA STATE UNIVERSITY
Department of Economics

Economics 428
Homework 1
Due September 2

Gallant
Fall 2021

This is an individual assignment in the sense that each individual must submit his or her answers. However, you should feel free to work with another classmate to solve the problems. Ultimately, it is important that each individual understand how to solve these problems because questions similar to these will appear on exams. Turn in via Canvas.

1. If demand is given by $P = 10 - Q$ and the selling price is $P_{ce} = 6.1111$, compute consumer surplus.
2. If a competitive firm's cost function is $C = 2 + 3Q + 4Q^2$ compute the firm's marginal cost function $MC_f(Q)$ and the quantity Q_f that it will choose to produce when the price is $P_{ce} = 6.1111$.
3. In Problem 2, what quantity would the firm produce at prices less than $P = 3$?
4. In Problem 2, if there are ten such firms, then the industry marginal cost curve is $MC_i(Q) = 3 + (8/10)Q$. If this industry faces the demand curve in Problem 1, then the quantity produced is $Q_{ce} = 3.8889$ at a price of $P_{ce} = 6.1111$. If the ten firms merge, then the resulting monopolist faces the demand curve in Problem 1 and would have $MC_m(Q) = 3 + (8/10)Q$. What quantity would this monopolist produce? What would be the price?
5. What is the dead weight loss to society due to monopoly pricing in Problem 4.