

The following homework assignment is to be submitted via email to Isaiah Boyer at [icb00014@mix.wvu.edu](mailto:icb00014@mix.wvu.edu) with a “cc” to me at [roger.congleton@mail.wvu.edu](mailto:roger.congleton@mail.wvu.edu). The answers are due **1 hour before class time on the day that we begin the next block of material** in the course. They should be typed up and emailed to Isaiah in Word. (This will take a bit of time, but it is good practice.) Isaiah will grade them and I will return them in class shortly after he finishes grading them.

1. Suppose that the market for pancakes is competitive and that the demand for pancakes in the morning is  $Q^D = a - bP + cY - dT$  where  $P$  is the price of pancakes,  $Y$  is average consumer income and  $T$  is the average temperature during the season of interest. The Supply curve is  $Q^S = eP - fw - gr$  where  $P$  is again the price of pancakes,  $w$  is the average wage rates of employees in the pancake shop and  $r$  is the rental cost of capital. (a) Find the equilibrium price and quantity in this market. (b) How does the equilibrium price change if average wage rates increase? (c) How does the equilibrium price change if consumer income increases? (d) How does the effect on the quantity sold differ in “b” and “c”?
2. Suppose that the market for pancakes is competitive and that the demand for pancakes in the morning is  $Q^D = q^D(P, Y, T)$  where  $P$  is the price of pancakes,  $Y$  is average consumer income and  $T$  is the average temperature during the season of interest. The Supply curve is  $Q^S = q^S(P, w, r)$  where  $P$  is again the price of pancakes,  $w$  is the average wage rates of employees in the pancake shop and  $r$  is the rental cost of capital. (a) Find the equilibrium price and quantity in this market. (b) How does the equilibrium price change if average wage rates increase? (c) How does the equilibrium price change if consumer income increases? (d) How does the effect on the quantity sold differ for “b” and “c”?
3. Suppose that Apex is the only pancake shop for many miles in an area of the Allegheny Mountains popular with hikers. It faces a downward sloping demand curve:  $Q^D = a - bP + cY - dT$ . Suppose that its cost function is:  $C = (ew + fr)Q^2$ . (a) Characterize Apex’s profit maximizing price and output. (b) Is the price above marginal cost? (c) Suppose that wage rates increase—possibly because of an increase in the minimum wage laws in the state in which it operates. How should Apex adjust its output and pricing to account for that change?
4. Suppose that Acme opens a pancake shop right next to Apex, and sells pancakes that are essentially the same as those sold by Apex. Assume the same demand and cost functions as in problem 3. (a) Characterize the Cournot duopoly equilibrium price and output. (b) Is the

price higher than marginal cost? (c) Is the price lower or higher than that chosen in problem 3?