

The following homework assignment is to be submitted via email to Leonard (Haoyu) Wang at hw00052@mix.wvu.edu with a “cc” to me. The answers are due before class time on the day that we begin the next block of material. They should be typed up and emailed to Leonard in Word. (This will take a bit of time, but it is good practice.)

- (1) Suppose that Acme is a profit maximizing firm that sells its output in a perfectly competitive market and has the cost function $C=5Q^{1.5}$. Find Acme’s profit maximizing output when the price at which its output can be sold is 100.
- (2) Suppose that Acme is a profit maximizing firm that sells its output in a perfectly competitive market and has the cost function $C=a+cQ^{1.5}$. Find Acme’s supply function.
- (3) Use your results from problem 2 to characterize the slope of Acme’s supply function.
- (4) Suppose that Acme is a profit maximizing firm that sells its output in a perfectly competitive market and has the cost function $C= c(Q, w, r, T)$. Characterize Acme’s supply function.
- (5) Use the results from problem 4 to characterize the slope of Acme’s supply curve and the effect of an increase in interest rates on its supply curve.
- (6) Suppose that Apex produces and sells a product for which there are “good” but not perfect substitutes. The demand curve for its products is $Q = a - bP$ and its cost function is $C = cQ^2$. Characterize Apex’s supply and pricing functions.
- (7) Suppose that Apex produces and sells a product for which there are “good” but not perfect substitutes. The demand curve for its products is $Q = a - bP + cY$ and its cost function is $C = c(Q, w, r, T)$. Assume that Apex’s profit function is strictly concave. Characterized Apex’s supply and pricing functions.
- (8) Use the results from problem 7 to characterize the slope of Apex’s supply function. What assumptions have you made about Apex’s cost function to reach that conclusion?