## Math 1314 – ONLINE Alternate Assignment 6

Record your answers to these questions on the Alternate Assignment 6 answer sheet and upload your answers to the Alternate 6 slot on the "Assignments" tab at casa.uh.edu. This assignment is due on Saturday, February 23, 2013, at 11:59 p.m. All work must be submitted electronically. Late work will not be accepted.

- 1. If the cost function is  $C(x) = -0.0001x^3 0.1x^2 + 120x + 45000$  and the demand function is p = 350 0.06x. Find the break even quantity.
- 2. How do you find the point where market equilibrium occurs?
- 3. Suppose that a company has determined that the demand equation for its product is 9x+16p = 84 where *p* is the price of the product when *x* of the product are demanded, and *x* is given in thousands. The supply equation is given by 12x-7p = 27, where *x* is the number of units that the company will make available in the marketplace at *p* dollars per unit. Find the equilibrium quantity and price.
- 4. The demand for a certain product is 15000 units when the price is \$380. The demand is 18000 units when the price is lowered to \$360. The manufacturer will not market any of the product if the price is \$200 or lower. But for every \$25 increase in price, the manufacturer will market an additional 1250 units. Find the demand equation and the supply equation, assuming both are linear.
- 5. Using your equations from problem 9, find the equilibrium quantity and price.
- 6. Suppose C(x) is a cost function. What does the expression  $\frac{C(351) C(350)}{351 350}$  represent?
- 7. What is the marginal cost function?
- 8. Suppose  $C(x) = 0.0004x^3 0.01x^2 + 85x + 10000$ . Use the marginal cost function to approximate the actual cost of producing the  $1006^{\text{th}}$  item.
- 9. How do you find a revenue function?
- 10. Describe the process for finding the marginal profit function if you are given a cost function and a demand function.
- 11. Suppose C(x) = 180x + 250000 and p = 425 0.06x Find the marginal profit function and use it to approximate the profit realized on the sale of the  $1251^{\text{st}}$  item.
- 12. How do you find the average cost function?
- 13. Suppose C(x) = 180x + 250000. Find the average cost when 845 units are produced.
- 14. Suppose C(x) = 180x + 250000. Is the average cost increasing or decreasing when the  $2001^{st}$  unit is produced?

15. In marginal propensity to consume/save problems, when units are given in billions, why do you use the given number, and not reduce it by 1, when substituting to find your answer?