Econ 306-001
Problem Set #3
DUE: APRIL 25, 2014 at the beginning of class

Instructions: Write or type your answers neatly. You may work with others if you like, but each person is required to hand in their own copy. This assignment will be graded on two margins. First, the assignment will be checked for completeness (points will be deducted for missing problems). Second, the assignment will be graded based on the accuracy of a subset of problems, usually 5 or 6 questions, worth around 20 points each.
Show your work! "Yes," "No," or single number answers will receive zero credit!

Chapter 7
Review Questions: 1,2,4,7
Problem: 8

Chapter 8:
Review Questions: 2, 3, 4, 5, 10
Problems: 3,4,7,8,16,19

Chapter 9:
Review Questions: 5,6,7
Problems: 9, 13

1. Derive formulas for average fixed cost, average variable cost, average total cost, and marginal cost for the following function. At what output is AVC minimized? ATC?
$$TC = 300 + 30Q$$

2. Pete trains parrots to speak on command. Pete's firm faces a short-run total cost of production given by $TC = Q^3 - 10Q^2 + 50Q + 500$. What is the level of Pete's fixed costs? What is Pete's short-run average variable cost of producing parrots? (Express AVC as a function of Q)

3. Determine whether each of the production functions displays increasing, decreasing, or constant returns to scale.
a.) $Q=\max(2K, 4L)$
b.) $Q=5K^{.25}L^{.75}$
c.) $Q= 2L^2 + 3K^3$

4. Myra is planning to start a business training pandas. It would cost her $200,000 a year to rent the training space and buy the materials he needs. She would also have to quit her current job as a lion tamer in the circus, giving up an annual salary of $40,000.
a. What is Myra's opportunity cost of start her business?
b. If Myra can earn an accounting profit of $50,000 a year, should she open her business?