Econ 101 Discussion Section-Handout 8

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1 Problems: Producer Theory

1. Black Swan Clothing (continued) As we have discussed the last week, Black Swan Clothing is a firm producing costumes for residents in Econ Town in a perfectly competitive market. If q is the number of costumes made my Black Swan Clothing, its costs are given by TC = 0.5q2 + q + 2 MC = q + 1

   (a) Find shutdown price and break-even price of Black Swan Clothing. Which is higher? What's the intuition behind this?

   (b) Find the supply curve of Black Swan Clothing. I

   (c) f the market price is $2, what's the profit of Black Swan Company? Should it choose to exit the market in the short run? How about in the long run? What if the market price is $0.5?

   (d) Suppose that there is the other firm, White Swan Clothing, in the market, with costs as follows: $TC = 0.5q2 + 2$ $MC = q$

      i. What's the market supply curve (we assume that there are only two firms in the market)?

      ii. What are the equilibrium quantity and price if market demand is given by P =1 -Q? What if the demand shifts to P =5 -Q?

2. Suppose a representative firm in the perfectly competitive natural gas industry has a long-run average cost curve given by$LRAC = 20,004 - 200q + 0.5q^2$

   (a) What is the quantity this firm produces in a long-run equilibrium?

   (b) What is the price of output in a long-run equilibrium? (Note: you can solve this WITHOUT using calculus).

   (c) For what values of q are firms in this industry experiencing: Economies of scale? Constant returns to scale? Diseconomies of scale?

3. Consider the perfectly competitive skateboard market at Madison. A representative firm's costs are given as follows: $TC = 3q2 + 12q + 27$ $MC = 6q + 12$ I

   (a) in summer, the demand of skateboard is: P =60 –Q. How many firms are there in the market in the long run?

   (b) Winter comes, and skateboard becomes more popular. The new market demand is: P =90 –Q. How much is the profit for each firm in the market in the short run?

   (c) How many firms will be in the market in the long run? How large is their profit? Explain the change from b) to c).