

First Exam

Write all answers in your blue book and show all work there. Return your exam and printout(s) in your blue book.

20 pts.

- 1) You are considering the purchase of a business. You plan to keep it for 5 years and sell it for 400,000 at the end of that year. It will make no profit for the first three years, but after that it will make 200,000 in the fourth year and 300,000 in the fifth year. Those profits will come in evenly throughout those years.
- a) If the discount rate is 13%, what is the most you will pay for the business?
- b) The firm's owner claims that you should use the current prime interest rate for your discounting and that you shouldn't discount the value of the firm at all because its assets are currently worth 400,000. What is your response?

20 pts.

- 2) You must choose between development of two products. Product A's profit stream has an expected value of 100 and a standard deviation of 30.
- a) Find those values for product B from the following information:
- | Profit | Probability |
|--------|-------------|
| 50 | .4 |
| 100 | .6 |
- b) Use four decision criteria to compare the choices.

20 pts.

- 3) a) If $AC = 10 - Q + .1Q^2$, find the minimum AC.
- b) Start with $TR = PQ$, and use the product rule to develop the relationship $MR = P(1 + 1/\epsilon)$.
- c) Start with $\ln Q = a + b \ln P$, differentiate by Q and show the b is the price elasticity.

Over

20 pts.

- 4) a) If $e_P = -2$ when $P = 4$ and $Q = 100$, what is the slope of the demand curve at that point?
b) If $e_P = -2$ and price rises by 10% , how much does Q change?
c) If $Q_D = 100 + 20I - 2P$, find the e_I when $P = 8$ and $I = 40$.

20 pts.

- 5) Suppose that your demand equation is $Q_D = 100 * \text{Price}^{-5}$.
a) Sketch the shape of the demand curve.
b) Is the demand elastic or inelastic? Why?
c) If demand is really like this, would it be profitable to sell more than one unit? Why?

I have neither given nor received unfair aid on this test nor am I aware of anyone else who has.
