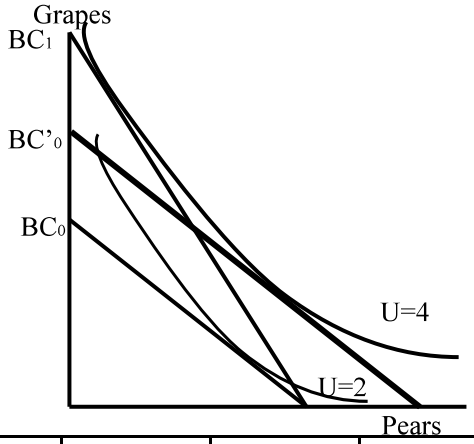
Write your name on the cover of the test booklet and nowhere else. Enclose this sheet with the booklet. Failure to follow these directions will cost you 1 point. The test has 240 points (to be scaled down to 200 points) and is scheduled to take 120 minutes. Therefore, expect to spend 1 minute for every 2 points. For example, a 16-point question should take 8 minutes. I can give some extra time because there is no test after this, but I will not give much extra time.

1) (10 points) Using the graph to the right, tell me EITHER whether the goods are substitutes or complements OR whether or not either good is inferior. Explain your logic.



2) (10 points each) For TWO of the following, estimate the elasticity. Explain how you reach that conclusion.
A) Elasticity of supply for corn now.
B) Income elasticity of demand for hamburgers.
C) Cross-price elasticity for lettuce and spinach.

3) (12 points each) For TWO use the table to the right to calculate the following elasticities in the manner described. What does that information tell you?
A) Own-price elasticity using the point formula.
B) Cross-price elasticity using the arc formula.
C) Income elasticity using the point formula.

P_{apple}	P_{corn}	Income	Q_{apple}
20	8	100	20
10	12	200	20
10	8	100	11
10	12	100	9

4) (14 points) Answer EITHER Part A OR Part B.
A) Explain without a graph, the economic reason why a Giffen good must be an inferior good.
B) State the equi-marginal principle for consumption. Why must it hold?

5) (14 points) Answer EITHER Part A OR Part B.
A) Suppose you had two expected payoffs. The first possibility has a 60% chance of occurring and a payoff of $70. The second option has a 40% chance of occurring and a payoff of $20. Calculate the expected payoff and standard deviation. Show all work.
B) What is meant by actuarially fair? Do insurance companies act like that? Why or why not?

6) (18 points) Answer EITHER Part A OR Part B.
A) Draw the supply and demand for a good which has a tax on it. Find the consumer surplus, producer surplus, tax revenue, and deadweight loss for before and after the tax. Explain how you found all areas.
B) Draw the supply and demand diagram for a good which we import. Draw the effects of an import tariff. Find the consumer surplus, producer surplus, tax revenue, and deadweight loss for before and after the tax. Explain how you found all areas.

7) (18 points) Answer EITHER Part A OR Part B.
A) Draw the graph of utility as a function of income for a risk averse person. Suppose they have a 90% probability that nothing goes wrong so they will have $20,000, but a 10% probability that they only have $12,000. Draw the diagram and estimate how much they would be willing to pay to get insurance against the bad incident.
B) Draw the diagram with expected return and standard deviation on the axes. Set the market return as 10% and the risk free return as 2%. The standard deviation for the market is 3 percentage points. Draw the indifference curve such that you have 80% in the market. What is the expected return on your portfolio and its standard deviation? Briefly explain how you drew the line, know that you are 80% in the market, and how you found the

expected return and standard deviation.

L	TPL	APL	MPL
1	6		
3		8	
	28	7	
	30		2

8) (18 points) Answer EITHER Part A OR Part B.
A) Draw the APL/MPL diagram. Show the effects of an increase in the amount of capital. Explain why the curve(s) moved as drawn.
B) Copy the table on the right into your bluebook. Fill it in. Show all calculations. If there is no calculation, then explain how you got the entries.

9) (20 points) Answer EITHER Part A OR Part B.
A) Draw the indifference curve/budget constraint diagram with three indifference curves for two goods which are perfect substitutes. Explain why the curves look like that. How much of each good do you buy? Explain your logic.
B) Suppose the price of hats had been $4/unit last year. Last year the price of vests was $8/unit and this year is $5/unit. Draw the budget constraint assuming your income is $40. Draw a normally shaped indifference curve tangent to it. If this year the price of a hat is $8/unit and the price of a vest is $2.50/unit, then draw the budget constraint which could be used to find the Laspeyres Price Index and the budget constraint which is what you would use to calculate the real harm from the price changes. Briefly explain how you found each of the three lines.

10) (24 points) Answer EITHER Part A OR Part B.
A) Draw the ATC/AVC/MC/D/MR diagram for a perfectly competitive firm which is making zero profits. Do not worry about the industry graph. Illustrate the effects of an increase in the cost of raw materials. Explain why the curve(s) moved as drawn. Do not worry about the long-run.
B) Draw the ATC/AVC/MC/D/MR diagram for a perfectly competitive firm in an increasing cost industry who is making positive profits. Do not worry about the industry graph. Illustrate the effects of what will happen in the long-run. Explain why the curve(s) moved as drawn.

11) (30 points) Answer EITHER Part A OR Part B.
A) Use an indifference curve/budget constraint diagram for books versus colored pencils. Use it to derive two points on the demand curve for books. You must use a scale and exact prices on your graph. Show all calculations and briefly explain what you did.
B) Use an isoquant/isocost diagram to draw two of each line. Use that data to graph two points on the LRATC line. You must use a scale, have exact values for w, r, and Q. Show all calculations and briefly explain what you did.

12) (30 points) Answer EITHER Part A OR Part B.
A) Draw two isocost lines which have the wage rate equal to twice the rental rate. Then draw the additional isoquants which have the wage rate equal to three times the rental rate. Draw the appropriate isoquants and the expansion path. Explain why the curve(s) moved as drawn.
B) Draw the ATC/AVC/MC/D diagram for a firm and beside it the S/D diagram for the industry. Have the firm making positive profits. Show what happens over time assuming it is a constant cost industry. Explain why the lines moved as drawn.