Intermediate Microeconomics 301
First Mid-Term
Spring 2007
Sections 1 and 2

Time: 50 minutes.

Instructions. To obtain credit, you must give arguments to support your answer. The numbers in brackets at the start of each question are the numbers of points the questions are worth.

Exercise 1 [30]: If demand for bags is described by the equation $Q_D = 60 - p$, and supply is $Q_S = 20 + p$, find the equilibrium price and quantity. How would your answer change if the supply curve shifted to $Q'_S = 10 + p$.

Exercise 2 [35]: Suppose demand for jackets is estimated to be $Q = 500 - 13p + 5p_x - 4p_z + 2m$ where $p$ is the price of one jacket, $p_x$ and $p_z$ are the prices of other goods, and $m$ is the income. If $p = 300$, $p_x = 50$, $p_z = 250$, and $m = 2500$; answer the following questions:
   1. What is the price elasticity of demand? Give a definition of elasticity.
   2. What is the cross-price elasticity with respect to commodity $x$? Give an example of what commodity $x$ might be.
   3. What is the cross-price elasticity with respect to commodity $z$? Give an example of what commodity $z$ might be.
   4. What is the income elasticity?

Exercise 3 [35]: The utility that Paula receives by consuming good $X$ and good $Y$ is given by $U(X,Y) = XY$.

   1. Draw her indifference curve associated with a utility level of 2, and the indifference curve associated with a utility of 4.
   2. Suppose good $X$ costs $4 a unit, good $Y$ costs $2 a unit, and Paula has $50 to spend on both goods. Graph the budget line she faces.
   3. What is the utility-maximizing choice of good $X$ and good $Y$?
   4. What is the marginal rate of substitution of good $X$ for good $Y$ when utility is maximized?
   5. Suppose that Janet buys 4 units of good $X$ and 17 units of good $Y$ with her $50 budget. Would her marginal rate of substitution of good $X$ for good $Y$ be greater or less than $−2$? Explain.