Econ 6401 – Fall 2006
Midterm #2 – Dr. Rupp

Name____________________________

Pledge (sign)____________________________
"I have neither given nor received assistance on this exam"

1. A consumer has utility function $U(x, y) = xy$. Income is \$72 per week and initially P_x = \$9 per unit and P_y = \$1. Now, suppose the price of X falls to P_x = \$4 per unit answer the following:

A) Determine the total effect from this price change.

B) Determine the substitution effect from this price change.

C) Determine the income effect from this price change.

D) Show the total effect, substitution effect, and income effect on a graph below.

2. Mrs. Betty Lou has utility function: $U = 2X^{0.5}Y^{0.5}$ where P_x and P_y denoting the price of X and price of Y, respectively and M represents income (use this information to answer questions A – H)

A) Find the generalized demand functions for good X and good Y.

B) Find the indirect utility function for Mrs. Betty Lou.

C) Derive Mrs. Betty Lou's expenditure function.

D) Derive Mrs. Betty Lou's compensating demand functions for X and Y.

E) If M = \$100, P_x = \$2 and P_y = \$1, find the optimal amount of X and Y.

F) If P_x = \$2 and P_y = \$1, find the minimum amount of expenditure needed to obtain utility of 100.

G) Initially M = \$100, P_x = \$2 and P_y = \$1, calculate the change in Betty Lou's consumer welfare using the equivalent variation (EV) measure when P_y rises to \$3. In one sentence interpret your EV finding.

H) Initially M = \$100, P_x = \$2 and P_y = \$1, calculate the change in Betty Lou's consumer welfare using the compensating variation (CV) measure when P_y rises to \$3. In one sentence interpret your CV finding.

3. Over a two-year period, an individual exhibits the following consumption pattern:

	P_x	P_y	X	Y
Year 1:	3	3	7	4
Year 2:	4	2	6	6

(A) Calculate the Lasperyres and Paasche Price indexes assume period 1 is the base period. In one sentence interpret the Lasperyres and Paasche Price indices number that you calculate.

(B) Is the individual better off, worse off, or cannot be determined in year 2? Explain how you came to this conclusion.

4. For the production function: $Q = a_1\sqrt{K} + a_2\sqrt{L}$

A) Find the conditional input demand functions K*(Q,r,w) and L*(Q,r,w)

B) Derive the generalized long-run total cost function TC(Q,r,w)

C) With w = \$1, r = \$4, $a_1 = 2$, and $a_2 = 1$, find the cost-minimizing input combination of L and K to produce 10 units of output.