Econ 1100
Professor Lise Vesterlund

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Group members:
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Problem Set 4
Due October 29

Ch. 8 Slutsky Equation

Problem 1:Ms. CD has the following preferences for xylophones(x) and yams(y): $U(x,y)= xy$. Ms. CD has \$800 to spend on the two goods, the price of a xylophone, p_x, is \$1, and the price of a yam, p_y, is \$1. The price of a xylophone suddenly increases to \$2 (p_x').

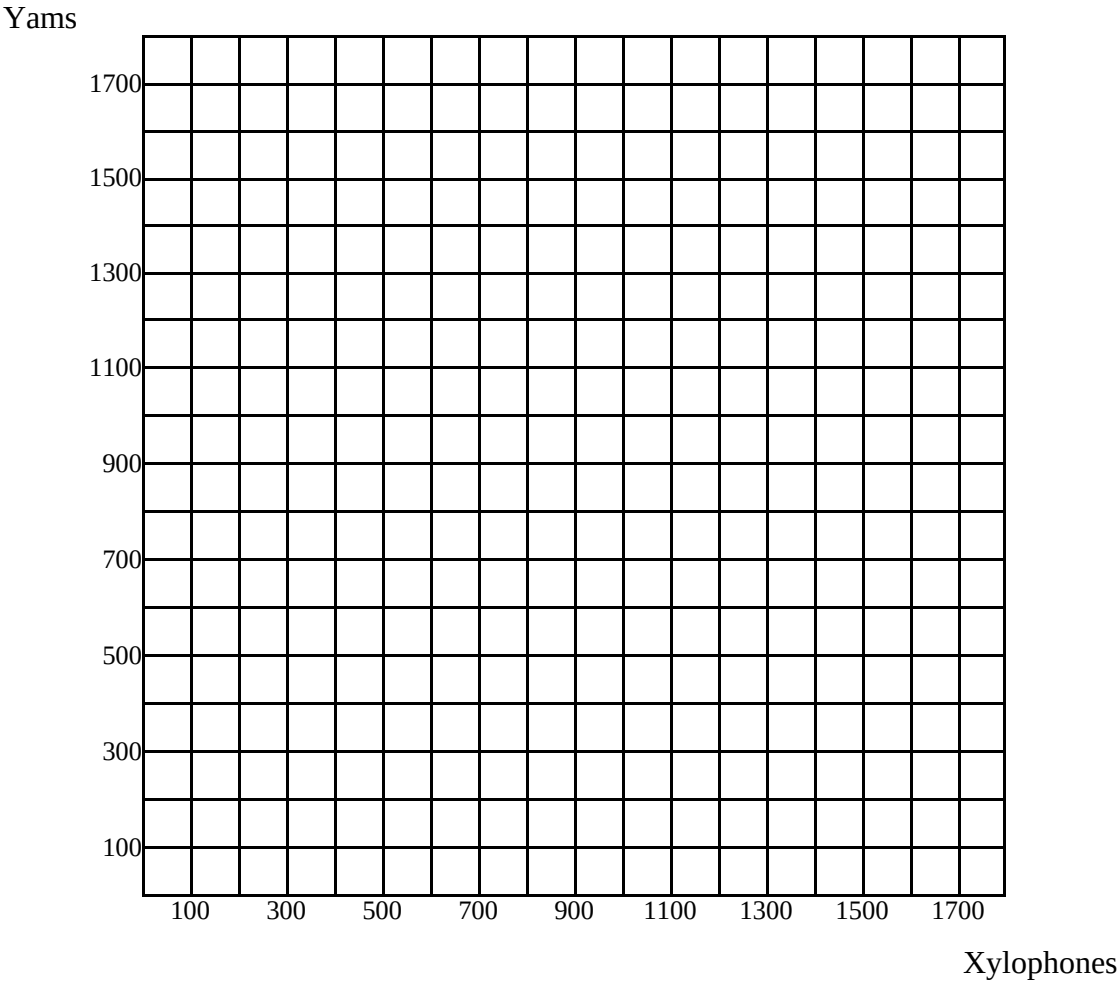
a) Before the price change how many xylophones and yams does Ms. CD buy.

b) How many xylophones and yams does she buy at the new price?

c) How large would Ms. CD's income, m', be if she after the increase in p_x exactly could afford her old consumption bundle?

d) How many xylophones and yams would she buy if she was faced with p_x', p_y and m'?

e) Draw three budget lines on the graph below. One illustrating the budget line before the price decrease, one after the price decrease, and finally the budget line she would face if she had income m' and the new prices. Denote her original consumption bundle by A, the final bundle by C, and the bundle she would buy at (p_x', p_y, m') by B.



f) How large a decrease in the total demand for x is due to the income effect? and how large a decrease in the demand for x is due to the substitution effect?

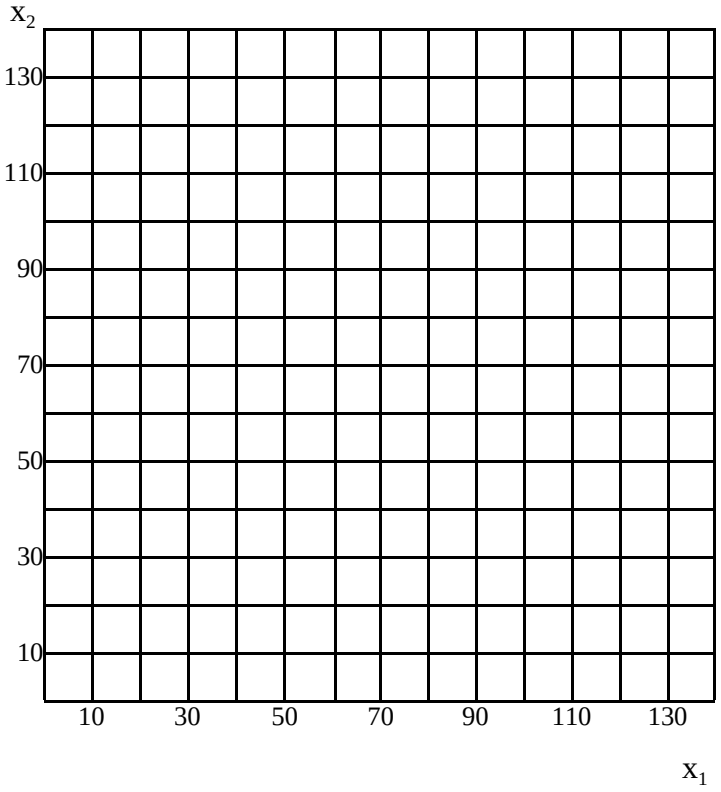
Problem 2: Betty's preferences for good 1 (x_1) and good 2 (x_2) can be described by $U= 2x_1 + x_2$. She has \$100 to spend on the two goods, and $p_1=5$, and $p_2=1$.

a. Determine Betty's demand for x_1

b. Determine the total change in her demand for good 1 when the price of good 1 decreases to\$1.

c. What are the substitution and income effects of this price change?

c. On the picture below draw a picture to illustrate the income and substitution effect. Be sure to illustrate the relevant budget lines and indifference curves.



Problem 3: Hank is shopping for ingredients for his margarita. His preferences for margarita mix (x_M) and tequila (x_T) can be described by U= min($2x_T$, x_M). Hank has $120 to spend on margarita, and p_T=20, and p_M=10.

a. Determine the total change in his demand for margarita mix when the price of margarita mix decreases to$5 per bottle.

b. What are the substitution and income effects of this price change?

c. On the picture below draw a picture to illustrate the income and substitution effect. Be sure to illustrate the three budget lines (before the price change, after the price change, and the budget line he would face at (p_x', p_y, m')