

Place your name on the back of this sheet of paper and nowhere else. Staple your answers on the front of this sheet of paper. Failure to follow these directions will cost you 1 point. Your assignment will be typed, except graphs can be drawn by hand and mathematical equations can be done by hand. Failure to type it will cost you 10 points. If you use double-sided printing or print on the back of scrap paper, I will give you one additional point.

1) (45 points) Draw the indifference curve/budget constraint diagram for napkins and lightbulbs with lightbulbs on the horizontal axis. Draw the budget line which shows your budget is \$120, napkins cost \$10/box, and lightbulbs cost \$5/bulb. Draw a new budget line for when the price of lightbulbs goes up to \$8/bulb and a third line for a price of \$12/bulb. Explain how you got the three budget lines. Draw the indifference curves which yield the desired expenditures for each price. Use the your graph to derive the demand curve for lightbulbs. Explain how you got it. Given your graph, are napkins and lightbulbs substitutes or complements? Explain your logic.

2) (45 points) Draw the indifference curve/budget constraint diagram for horns and caps with horns on the horizontal axis. Draw the budget line which shows your budget is \$140, horns cost \$10 each, and caps cost \$5 each. Draw a new budget line for when your income goes up to \$160 and a third line for an income of \$180. Explain how you got the three budget lines. Draw the indifference curves which yield the desired expenditures for each price. Use the your graph to derive the Engel Curve for horns. Explain how you got it. Given your graph, are horns normal or inferior? Explain your logic.

3) (10 points) What is the difference between and Engel Curve and an income-consumption curve?