1. Draw the indifference curves for the following individual's preferences for two goods: cowpies and Belhaven. (Plot Belhaven on the horizontal axis.)
a) Jennifer always prefers more Belhaven no matter how many cowpies she has.
b) Kyrstin is indifferent between bundles of **either** 3 Belhavens **or** 2 cowpies. Her preferences do not change as she consumes any more of either food.
c) Yolien loves cowpies but is allergic to Belhaven. Every time she drinks a Belhaven she breaks out in hives.

2. Greg gets utility from consuming Belhaven and cowpies. The maximum amount that Greg can consume of each is 80 cowpies and 50 Belhaven. Greg is observed to buy 30 cowpies. The price of Belhaven is $8. Draw the budget line and indifference curve to represent this situation. Put cowpies on the horizontal axis. Label all points.
a) What is the price of a cowpie?
b) What is Greg's income?
c) How many Belhavens does Greg consume in equilibrium?
d) What is the slope of the budget line? What does the slope represent?
e) What is the MRS at the equilibrium point? What does the MRS represent?

3. Ms. Phashun, a clothing salesperson, is forced to spend at least a large minimum amount of her income on clothing. Show that her utility level is lower than if she could freely allocate her income.

4. Use budget lines and indifference curves to analyze the effect of the following policies on the quantity demanded of some good, X.
a) Government gives the individual $500.
b) Government places a 5% tax on good X only.
c) Government places a 5% tax on both goods.

5. Suppose government is considering a lump sum tax on cigarette smoking. Anyone who smokes must pay a flat amount regardless of the amount smoked. Use cigarettes as one good and expenditures on all other goods as the other.
a) What would the new budget line under the lump sum tax look like? (The price of cigs remains constant)
b) What would probably happen to the amount of cigs purchased?

6. Explain why two indifference curves cannot cross.

7. Suppose that Nathan and Tian both spend $24 per week on video and movie entertainment. When the prices of videos and movies are both $4, they both rent 3 videos and buy 3 movie tickets. Following a video price war and an increased cost of movie tickets, the video price falls to $2 and the movie ticket price increases to $6. Nathan now rents 6 videos and buys 2 movie tickets; Tian, however, buys 1 movie ticket and rents 9 videos.
a) Is Nathan better off or worse off after the price change?
b) Is Tian better off or worse off after the price change?

8. A (Family Feud) survey shows that most people prefer Cadillacs to Chevrolets. How can you reconcile this survey result with the fact that more people drive Chevrolets than Cadillacs?

9. At an income of $40,000 Brian chooses **not** to buy a certain luxury car, but he does choose to buy **one** at an income of $80,000. If the price of the luxury car is $40,000, draw the relevant budget lines and indifference curves and briefly explain your diagram. Plot the number of cars on the horizontal axis and All Other Goods (AOG) on the vertical.

10. Bugs Bunny consumes only lettuce and carrots. Illustrate the effect of a rise in the price of carrots. Carefully show the income and substitution effects assuming carrots are a normal good. Give a brief explanation. (Put carrots on the horizontal axis.)

11. Miss Ally Cate derives utility from only two goods, Amstel Light and fajitas. Ally earns $900/mo and is observed to purchase 300 Amstels and 50 fajitas when the price of Amstel is $2/bottle and the price of fajitas is $6 each.
a) Show the equilibrium position in a diagram. What is the MRS?
b) Suppose the price of Amstel falls to $1/bottle. Show the new equilibrium. Is Ally better or worse off? What is the new MRS?

12. Suppose on graduation, you receive two job offers. One offer provides a salary of $30,000 per year but provides no fringe benefits. The other job pays you $28,000 per year but allows you to consume up to 25 physician office visits per year with the bill paid by your employer. Suppose that the market price of an office visit is $80.
a) Draw your budget line showing your options to consume visits to physicians each year and expenditures on AOG under each job offer. (Graph each job offer on the same graph. Put visits on the horizontal axis.)
b) Suppose you are young and healthy and expect to go to the physician about 5 times a year. Which job offer would you choose and why? Use indifference curve analysis to show this choice.
c) Assuming that you actually do make 5 medical visits per year, show how much income you can retain to spend on all other goods if you take the job offer selected above.

13. Suppose that you hate typing and hate filing.
a) Draw a graph with "hours of typing" on the horizontal axis and "hours of filing" on the vertical axis. Do your indifference curves slope upward or downward? Why?
b) Suppose you currently type for 3 hours a day and file for 5, but you'd be just as happy typing for 2 hours a day and filing for 7. What is the slope of your indifference curve at the point (3,5)? If you hated typing even more than you do, would you expect the indifference curve to be steeper or shallower?
c) Would you expect the indifference curve to be steeper or shallower at points that represent a lot of typing and very little filing? What does this say about the shape of the indifference curves?
d) Suppose your boss tells you that henceforth, you may divide your 8-hour day any way you wish between these two activities, but the number of hours you spend typing and filing must add up to 8. Draw the relevant budget constraint.
e) Given the information in part (b), will you now choose to type more or less than 3 hours a day? Illustrate your new optimum and explain why it is your optimum.

14. Originally P_x is $120 and P_y is $80. True or False: If P_x increases by $18 and P_y increases by $12, the new budget line will be shifted inward and parallel to the old budget line. Explain.

15. People do not typically buy some of every good available on supermarket shelves. Rather, they limit their purchases to relatively few items that they know they like. For example, some people (such as your teacher) never buy tomato juice or Spam, although others obviously do. Show the utility-maximizing situation for such people and explain precisely why Spam is not bought. Use this analysis to explain what people mean when they say some good "isn't worth the price".

16. Suppose the income effect of a price decrease for beer is removed by a tax. A consumer was in equilibrium consuming 4 gallons of beer each month before the price decrease. The price per gallon of beer was $10. If the new price is $5, use indifference curve analysis to show that the consumer must increase her consumption of beer even though after paying the tax she will be no better off by doing so.

17. Assume that an individual has a two-period time horizon with income in period 1 equal to 1/3 K and income in period 2 equal to 2/3 K; that is, total income equals K. Assume that with a zero interest rate the individual consumes K/2 in each period.
a) Draw the budget constraint and relevant indifference curve for this individual. Put C1 (consumption in period 1) on the vertical axis and C2 on the horizontal axis. Make sure you label all relevant points; that is, all axes, intercepts, and equilibrium points.
b) What happens to the constraint when the interest rate becomes positive?

18. Mr. R. Plane, retired college administrator, consumes only grapes and the composite good AOG (PAOG = $1). His income consists of $10,000/yr from social security, plus proceeds from whatever he sells of the 2000 bushels of grapes he harvests annually from his vineyard. Last year, grapes sold for $2/bushel, and Plane consumed all 2000 bushels of his grapes in addition to 10,000 units of AOG. This year, the price of grapes is $4/bushel, while PAOG remains $1. If his indifference curves have the conventional shape, will this year's consumption of grapes be greater than, smaller than, or the same as last year's? Will this year's consumption of AOG be greater that, smaller than, or the same as last year's. Explain.

19. Suppose the government raises the excise tax on gasoline thereby raising the price of gasoline. In order to offset the harm done to consumers of this tax increase, suppose the government gives a rebate to gasoline users sufficient to keep them as happy as they were prior to the tax increase. True or False: Consumers will consume the same amount of gasoline as before. Illustrate and briefly explain. (Put gasoline on the horizontal axis and AOG on the vertical.)

20. Danny and Mike walk into a music store. Danny (whose nickname is Mister Convex) has indifference curves that exhibit diminishing marginal rates of substitution for classical and rap music records. Mike, who is known as Mister Concave, has indifference curves that exhibit increasing marginal rates of substitution for these types of records. The classical and rap music records sell at the same price, and both Danny and Mike have the same budget. When they leave the store, one person has bought only rap music records and the other person has bought some of both types of records. Who bought what? Draw two diagrams that illustrate these choices and indicate the equilibrium bundles.

21. If Zhuo were given $10, he would spend none of it on tuna fish. But when asked, he claims to be indifferent between receiving $10 worth of tuna fish and a $10 bill. How could this be?

22. Hannah is 14 years old. She likes candy and hates spinach. She is allowed 2 candy bars a day, but her mother offers her 1 additional candy bar for every 2 ounces of spinach she eats.
a) On these terms, Hannah eats 3 ounces of spinach and 3.5 candy bars each day. Using indifference curves, illustrate her optimal choice.
b) Suppose that Hannah's mother does not give her 2 "free" candy bars each day but still gives him 1 candy bar for every 2 ounces of spinach she eats. Would her spinach consumption be greater or smaller than in part (a)? Explain your answer.

23. Geng Xi has $2000 in income and rents a one-bedroom apartment for $500 a month.
a) Draw Geng Xi's budget line and indifference curve to indicate this consumption bundle. (Put Housing on the horizontal axis and AOG on the vertical axis; the price of AOG is $1).
b) The government offers to subsidize 50% of Geng Xi's apartment rent. Draw the new budget line and relevant indifference curve indicating that Geng Xi consumes more housing than in part (a).
c) What is the cost of this program from the Government's view.
d) Suppose the Government simply gave Geng Xi a straight cash subsidy equal to the amount figured in part (c) above. Draw this budget line on a separate graph with a plausible indifference curve.

24. Continental Long Distance Telephone Service offers an optional package for in-state calling whereby each month the subscriber gets the first 50 minutes of in-state calls free, the next 100 minutes at $0.25/minute, and any additional time at the normal rate of $0.50/minutes.
a) Draw the budget constraint for in-state phone calls and the composite good for a subscriber with an income of $400/month.
b) What is the cost of making an additional 20 minutes of calls
i) if he currently makes 40 minutes of calls each month?
ii) if she currently makes 140 minutes of calls each month?

25. True or false: For a budget spent entirely on two goods, an increase in the price of one will necessarily decrease the consumption of both, unless at least one of the goods is inferior. Explain.

26. True or false: All Giffen goods are inferior. Explain.