1. You have an income of $80 to spend on movie tickets and the composite good (all other goods), Y. Movie tickets cost $8 per ticket and Y costs $16 per unit.
   a. Write an equation for your budget constraint:
   b. If you spent all your income on movie tickets, how much could you buy?
   c. What is the opportunity cost of movie tickets in terms of Good Y?
   d. If you spent all your income on Good Y, how much could you buy?
   e. Graph your initial budget constraint and label it BC0.
   f. Suppose the price of movie tickets increases to $10 while everything else stays the same. Write down your new budget equation and graph the new budget constraint; label it BC1.
   g. Suppose your income increases to $96 while the prices of both commodities remain at $8 for movie tickets and $16 for Y. Write down your new budget constraint and graph the new budget constraint and label it BC2.
   h. On your diagram, shade in the area representing commodity bundles that you can afford with the budget in part (g) but could not afford to buy with the budget in part (a).

2. Ed spends all his income on 10 Foo Fighter CDs and 4 bowling balls. All Foo Fighter CDs are $10/CD and bowling balls are $50.
   a. What is Ed’s income?
   b. If the price of Foo Fighter CDs increased to $20 per CD, but the price of bowling balls stayed the same how much would Ed’s income have to rise so that he could still afford his original bundle of goods?
3. Your budget is such that if you spend your entire income, you can afford either 4 units of good $x$ and 6 units of good $y$ or 12 units of $x$ and 2 units of $y$.
   a. Mark these two consumption bundles and draw the budget line.
   b. What is the ratio of the price of $x$ to the price of $y$?
   c. If you spent all of you income on $x$, how much $x$ could you buy?
   d. If you spent all of your income on $y$, how much $y$ could you buy?
   e. Write a budget equation that gives you this budget line, where the price of $x$ is 1.
   f. Write another budget equation that gives you the same budget line, but where the price of $x$ is 3.

4. An advertisement on TV promises that if you dial a toll free number, you can talk long distance for 20 minutes at a rate of $.05/minute. The fine print at the bottom of the advertisement informs you that for every minute you go over 20 minutes, the cost per minute is $.10. If you have $5 to spend on phone minutes and all other goods, $Y$, where the price of $Y$ is $1, draw this budget constraint:
5. Critically evaluate the following statements and explain in what way they are true, false, or uncertain.

a. Sandy claims that she is indifferent between baking cookies and shopping. She also claims that she prefers baking cookies over watching TV. If Sandy claims that she is indifferent between shopping and watching TV, her preferences break the transitivity assumption.

b. John consumes only running shoes and shorts. On the same day that his income is reduced by half, the prices of both running shoes and shorts fall by half. These events will shift John’s budget constraint in.
6. A recent report by the Census Bureau ([http://www.census.gov/prod/2005pubs/p60-229.pdf](http://www.census.gov/prod/2005pubs/p60-229.pdf)) finds the following:

“The percentage of the nation’s population without health insurance coverage remained stable, at 15.7 percent in 2004. The number of people with health insurance increased by 2.0 million to 245.3 million between 2003 and 2004, and the number without such coverage rose by 800,000 to 45.8 million.” (see [http://www.census.gov/Press-Release/www/releases/archives/income_wealth/005647.html](http://www.census.gov/Press-Release/www/releases/archives/income_wealth/005647.html) for a summary)

You have been asked to evaluate a few proposals to increase the amount of health care that low income individuals receive.

a. Suppose the following is a typical budget constraint for a low-income individual. She spends all her money on health care and Y (everything else). If her income is $10,000, the price of Y is $_________/unit and the price of health care is $_________/unit.

b. Graph the effect of each proposal on the individual’s budget constraint and carefully label the budget constraint with the proposal letter.

- **Proposal A (BC\textsubscript{A})**: Pay half of each consumer’s health care bill. (Hint: Consider what this does to the price of health care and find the endpoints of the budget constraint.)
- **Proposal B (BC\textsubscript{B})**: Give each individual $4000 in cash.
- **Proposal C (BC\textsubscript{C})**: Give each individual $4000 in a voucher that can only be used for health care.

c. Write equations for each of the budget constraints.

- BC\textsubscript{A}:
- BC\textsubscript{B}:
- BC\textsubscript{C}:

d. What type of person would prefer proposal A over proposal B and vice versa?

e. Compare proposals B and C. Is one clearly better than the other? Why? Use your intuition!
7. Draw indifference curve maps for the following rankings of preferences and, where necessary, indicate the direction in which utility is increasing. (Hint: None of these look like the Oreo/Pizza one from class.)

a. When Ruby goes to a garage sale, she finds 3 boxes of “stuff” for sale. The first box is filled with antique china birds and old books. A second box has the same number of china birds and even more old books. Ruby is equally excited about these two boxes. She is even more excited about a box with more china birds and the same number of old books as the first box.

b. Suppose Gene is a color blind consumer (that is, he can’t distinguish among different colors). Gene does not care what color sweatshirt he wears but gets more satisfaction the more sweatshirts he has.

c. Bea Student has wacky professor who tells her on the first day of class that she will be given two exams and that her grade in the course will be the maximum score of the two exams. That is, the lower of the two scores will be dropped. The higher Bea’s grade is, the happier she is.

d. Katie is a resident advisor in a dorm on campus. When asked if she would be on duty for additional hours, she replies, “Only in exchange for Ben and Jerry’s Ice Cream.”

e. What is Ruby’s MRS for books in terms of antique china birds?

f. What kinds of goods are blue and gray sweatshirts for Gene?

g. Is Katie’s MRS diminishing? Explain
8. The diagram shows three (out of an infinite number) convex indifference curves for George Vanity.

a. Label the following points:
   At Point Q, George consumes 50 tanning sessions and 50 units of Y.
   At point R, George consumes 50 tanning sessions and 25 units of Y.
   At point S, George consumes 25 tanning sessions and 50 units of Y.
   At point T, George consumes 50 tanning sessions and 10 units of Y.
   At point U, George consumes point 10 tanning sessions and 50 units of Y.

b. Given the typical assumptions about preferences made in class, of the labeled points, which point(s) gives the highest level of satisfaction?

c. Given the typical assumptions about preferences made in class, of the labeled points, which point(s) gives the lowest level of satisfaction?

Verbally explain what the marginal rate of substitution is. As George consumes more tanning sessions, what happens to his MRS? And why?

d. True or false: At point T, George is consuming MORE tanning sessions than at point S. Because of our assumption more is better, George must prefer point T to point S. Fully defend your answer.

e. Label two more points. At point A, George consumes 35 tanning sessions and 90 units of Y. At point B, George consumes 55 tanning sessions and 35 units of Y. Explain why points A and B cannot be on the same indifference curve for George.

f. Suppose Joanne has an indifference curve that runs through points A and B. What does the shape of her indifference curve tell you about how she feels about tanning sessions, relative to George?