ECON 101, Problem Set 1
Due Tuesday, June 7

1. Suppose there are two "goods", x and y, and your utility function is

$$u(x, y) = x - y$$

   (a) In 1-2 sentences, how would you interpret good y given how it enters the utility function?

   (b) Draw indifferences curves (in (x, y)-space) for these two goods, and an arrow pointing in the direction in which utility is increasing.

   (c) Supposing $p_x = 2$, $p_y = 1$ and $w = 10$, you cannot save money, and you can't purchase negative quantities, how many units of x and y would you choose to buy?

2. Suppose you are from Astana and you have a job that pays $27,000 per year in Astana. You are offered a job in Almaty that pays $30,000 per year.

   (a) What is the monetary opportunity cost of working in Astana?

   (b) Would you take the job in Almaty?

   (c) Suppose you have not taken the job in Almaty. What is the lowest value (in dollars) that the non-monetary benefits of working in Astana could have (given this decision)?

3. For each of the following statements, determine whether the statement is *positive* or *normative*. Briefly explain your answer.

   (a) By the end of the year Joe's savings from his work should be sufficient to pay for a year of college tuition.

   (b) Susie should get more sleep.

   (c) The government should cut taxes on the rich.

   (d) Cutting taxes on the rich will benefit the poor through "trickle down" economics.

4. Suppose there are three alternatives (a, b, c) and Dave the deer's entire preferences are:

$$a \succ b, \qquad b \succ c$$

   (a) Why can we say that Dave is not rational?

   (b) Add an additional comparison that would make Dave rational.

   (c) Returning to the original preferences (discarding your addition), what other addition could you make such that Dave would remain irrational?

5. Suppose you have utility function $u(x, y) = \min(x, 2y)$.

   (a) To what broad category of utility functions that we've already studied are these related?

   (b) Give an example of two goods for which one might have this utility function.

   (c) Draw indifferences curves (in (x, y)-space) for these two goods.

6. Suppose $p_x = 6, p_y = 3, w = 24$.

   (a) Find the formula for the budget constraint.

   (b) Show and label the budget constraint, its slope, and the budget set in (x, y)-space.

   (c) Now show the new budget set for each of the following scenarios:

      i. y is rationed by the government so that you may purchase at most 4 units of it.

      ii. The government stipulates that you must buy at least one unit of each good.

      iii. There is a bulk discount on x. Once you've brought two units at full price, additional units cost just 3.