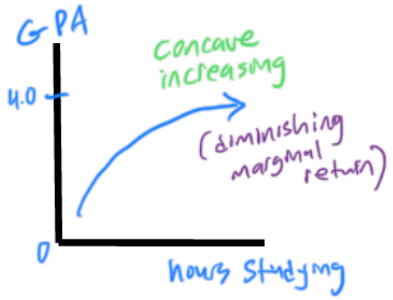
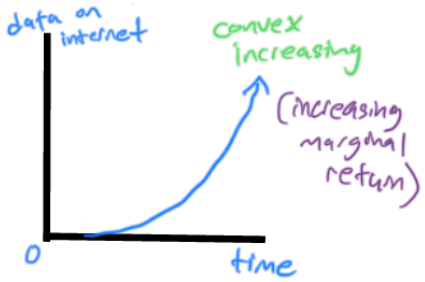
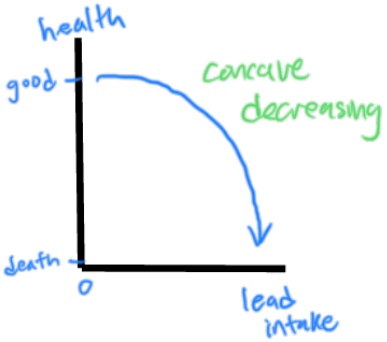
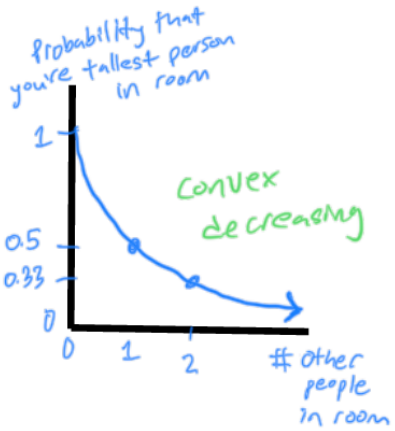
Graphing Relationships Between Variables & Essential Vocabulary

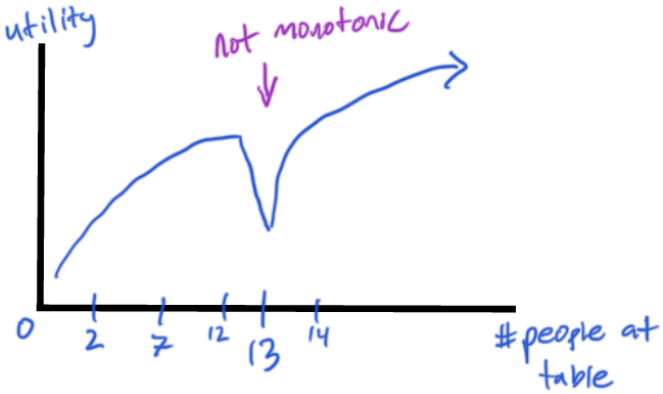








All of the above graphs are monotonic (do not change direction) and continuous. The graph below is *not* monotonic: more of X does not always have the same type of effect on Y in this example of a superstitious person whose happiness is lower from having 13 people at her dinner table (an "unlucky" number") than the happiness she would derive from having either 12 or 14 people seated.



Budget Constraints

A budget constraint shows the set of possibilities for how money (or total amount of any resource) can be used in exchange for two or more things. The most common examples depict quantities of two goods, with intercepts on each axis determined by dividing the amount of total money available (**M**) by the price ($\mathbf{P_X}$) for one unit of good X. Each intercept point represents when all money is spent on that good, with the value on that axis indicating the maximum obtainable amount of that good. Each set of things is called an *allocation* and every allocation on or "inside" of the budget constraint line (closer to zero/zero) represents an affordable or *feasible* set of things. In the budget constraint below, for example, if one unit of food costs $10 and one unit of clothing costs $20 then the allocation (f,c) = (10,0) spends all $100 of available money on food. The allocation (5,1) would spend $50 on food and $20 on clothing, which would not use up all available resources and therefore be interior (below and to the left of the budget constraint) rather than lying on the budget constraint. The allocation (4,3) would be a point on the budget constraint that does use all available money, and unaffordable allocation (5,4) would cost $50 + $80, with the point representing that allocation located above and to the right of the budget constraint.