STAT101: Spring 2012
More Mideterm 2 Review Problems
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Here's a few more problems – these may be a little more challenging but they will help prepare for the exam.

1. If $P(B)=0.60$ and $P(A\cap B)=0.10$, **which is more likely: A|B or B|A?**

2. If it rains there is a 70% chance that it is windy also. The forecast gives a 25% chance of rain. Therefore, the probability of wind is $.70\cdot.25=.175$ (ie 17.5%) probability of wind.
What is wrong with this reasoning?

3. At a certain factory, units are produced on the assembly line one after the other. Sometimes there is a glitch in the system and the factory produces defective items.
A defective item is produced after a working item with probability 0.1%. A defective item is followed by another defective item with probability 95%. Assume that the machines are checked every night so that the first item of the day is a working item with 100% probability.
   - **What is the probability that the second item of the day is working?**
   - **What is the probability that the second through 5th items are all working?**
   - **What is the probability that the second item is defective by the 10 after it are all working?**
   - **What is the probability that the first 4 items of the day will be working, defective, working, and working (in that order)?**
   - **If item #3 is defective, what is the probability that item #2 was working?**
   - **If the company produces 50 items today, what is the probability that the company will only produce 1 defective item today?**
   - **Is the binomial distribution appropriate to predict the # of defective items produced? Why or why not?**