STAT/MA 41600
Practice Problems: September 8, 2014

1. Waking up at random.

On each weekday, a student wakes up before 8 AM with probability .65, or after 8 AM with probability .35.

On each weekend, a student wakes up before 8 AM with probability .22, or after 8 AM with probability .78.

Suppose that a student wakes up and can't remember which day it is!

(a.) If the student sees that it is before 8 AM, what is the probability it is a weekday?

(b.) If the student sees that it is after 8 AM, what is the probability it is a weekday?

2. Gloves. A matching pair of blue gloves, a matching pair of red gloves, and one lone white right-handed glove are in a drawer.

Suppose that a person blindly pulls a glove out of the drawer and it is not red (i.e., it is either the white glove or one of the blue gloves). He discards this glove, so four gloves remain.

Now he reaches into the drawer again and chooses a glove at random from the four gloves that remain. What is the probability that this glove is blue?

3. Pair of dice. Roll a blue die and a red die. Given that the blue die has an odd value, which is the probability that the sum of the two dice is exactly 4?

4. Pair of dice. Roll a blue die and a red die. Given that the blue die has a value of 4 or smaller, what is the probability that the sum of the two dice is 7 or larger?

5. Coin flips and then dice. Claire flips a coin until she gets heads for the first time. Say it takes her n times. Then (afterwards) she rolls exactly n dice. What is the probability that none of the dice show the value 1?

(For instance, if it takes her 7 flips to get heads for the first time, then she rolls 7 dice.)