

# Quantitative Reasoning 28: The Magic of Numbers

## Homework 7

Assigned on Wednesday October 3rd  
**Due at 12 noon Friday October 5th**

Please submit problem sets at the end of the relevant lecture, or leave in the box labeled QR28 outside the Math Department's main office, on the third floor of the Science Center (Room 325).

### Reading:

Gross-Harris, Chapter 5

### Problems:

Please explain your reasoning and show your work.

1. Flipping through your Rolodex you choose at random three friends, call them up, and ask them their birthdates.  
What is the probability that at least two of the people you chose were born on the same day of the week?
2. How many distinct rearrangements of "MISSISSIPPI" are possible if we don't allow the 4 I's to be all together? (Clumps of 2 or 3 I's are okay.)  
*Hint: To count those that do have the I's all together, treat a clump of 4 I's as a single letter.*