Quantitative Reasoning 28:
The Magic of Numbers

Homework 5

Assigned on February 14
Due at 5:00 p.m. February 16

Please submit problem sets to the boxes outside the Math Department's main office, on the third floor of the Science Center (Room 325).

Reading:

Gross-Harris, Chapter 4 and 5.1-5.2

Problems:

Please explain your reasoning and show your work.

1. How many distinct ways are there to rearrange the letters in "MISSISSIPPI"? How about "WOOLLOOMOOLOO" (a town near Sydney, Australia)?

2. At a certain small boarding school, the incoming class of 12 needs to be assigned to dormitory rooms. There is one 5-person room, a quad, a double, and a single. In how many ways can the assignment be made?

3. You roll two standard 6-sided dice. What is the probability that their sum is at least 8? What is the probability that their difference is at least 2?

4. What is the probability that when four cards are dealt at random from an ordinary deck of 52, each suit is present (note that a standard deck has four suits of thirteen cards each)?