

# Quantitative Reasoning 28: The Magic of Numbers

## Homework 2

Assigned on February 7

**Due at 5:00 p.m. February 9**

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

### Reading:

Gross-Harris, Chapter 2

### Problems:

Please explain your reasoning and show your work.

1. Florian goes out to dinner at Chili's to celebrate the fact that he's not teaching calculus this year. He plans to order chips with either salsa, queso, or guacamole; either chicken or portabello mushroom fajitas; and one of Chili's five signature margaritas. How many ways are there for him to order dinner?
2. How many 4 digit numbers are there using the digits 0, 1, 2, 3, 4, 5, and 6? Be careful: the first digit can't be zero! How many of these are even?
3. How many license plates are there of the form 3 letters, then 3 numbers? What if we restrict the 3 numbers, considered as a 3-digit number, to be between 141 and 602, inclusive?
4. How many 5-letter words (remember, for us a word is just a string of letters, not necessarily a word in the English language) can be formed using the standard 26-letter alphabet? How many with at least one z?