**Problem Set 1**

## Problem 1

* 1. Consider a stack of three tennis balls. Is the height of the stack less or greater than the circumference of one tennis ball?
  2. Now answer the same question with ping-pong balls. Is the answer the same or different?
  3. Now make a statement about 3 stacked spheres in general. Explain/prove your statement.

## Problem 2

Suppose there are *n* people in a math 196L class. If they all shook hands with each other what is the total number of handshakes?

## Problem 3

Suppose there are *n* people in a math 196L class. If person A shakes hands with person B who shakes hands with person C who again shakes hands with person A, we have a group of 3 people. What is the total number of such possible groups in the class? (Equivalent to 3 people fist-bump)

## Problem 4

1. A coin is flipped 10 times, and the number of heads and tails is counted. How many different ways can one get exactly 3 heads?
2. A coin is flipped *n* times, and the number of heads and tails is counted. How many different ways can one get exactly 3 heads?

## Algebra Practice:

1. 

1. 
2. Write in complete factored form:

