

## MA 310 Homework #2

Due Friday, January 18

Solve these problems yourselves! It should be obvious that you should NOT search the web for answers—this is of no permanent benefit to anyone.

1. Short answer only; do not provide justification (though, of course, you should be able to if asked).
  - (a) If two people are playing a game like the Game of 100, but this time the goal number is 1,000,000 and you are allowed to add numbers from 1 through 9, who will win and what is the first “key” number?
  - (b) If two people are playing a game like the Game of 100, but this time the goal number is 1,000,000 and you are allowed to add numbers from 1 through 10, who will win and what is the first “key” number?
2. Solve the following, found in the file “Problems” on the course website.
  - (a) Game of 100, part (3). Hint: To warm up, you might first look at shorter games in which the goal number is 10 or 20.
  - (b) The Average Traveler, parts (1) and (2).
  - (c) Chickens and Eggs.
  - (d) Handshaking, part (1).
3. Extra Credit: Explain how to solve the “Counterfeit Coins” problem, part (3), in three weighings.