Math 299-Midterm Gambles
September 1, 2015

1. You are given 12 red chips and 12 blue chips. You are to distribute them into two piles with at least one chip in each pile. I will choose one pile at random and then choose one chip from that pile at random. If the chip is blue, no midterm. If it is red, midterm. Maximize your chance of no midterm.

2. Three of you will be given a card at random, either black or red. You may look at the cards of the others, but YOU MAY NOT LOOK AT YOUR OWN CARD, nor may you communicate with the others. I will ask all three simultaneously what color their card is. Each person may or may not answer. There will be no midterm if at least one person answers my question and if everyone who answers is correct. In advance of receiving the cards, you may discuss a strategy to maximize your chances for success. Determine a strategy to maximize your chance of no midterm.

3. Four of you are given a card at random, either black or red. There will be two red and two black cards. The first person's card can be seen by noone else. The second person's card can be seen by the third and fourth people. The third person's card can be seen by the fourth person. The fourth person's card can be seen by noone. As soon as someone can tell me the color of their card, there will be no midterm. Devise a strategy.