

Homework 4

Do the problems on **Webwork** and turn the following problems in class on Feb. 16th.

Homework should be written neatly and clearly explained. If it requires more than one sheet, the sheets must be stapled. Include your name and id number in the top right corner of your homework.

Problem 1. You are dealt 5 cards out of a standard 52 card deck.

- a) What is the probability you get exactly 2 aces?
- b) Assuming you are repeatedly dealt 5 cards out of a standard 52 card deck, with each round being independent. What is the expectation of the number of hands you are dealt until you get exactly 2 aces?
- c) If you are dealt 100 hands, with each hand being independent. What is the probability you get exactly 2 aces in at least 3 hands?

Problem 2. We roll a fair die. In the first stage of the experiment roll the die until we get 1, and we remember how many times we rolled it (say k times). In the 2nd stage of the experiment we will toss a fair coin of number of times we had rolled the die (k times). What is the probability that in the 2nd stage we get no heads?