

Math 344 Winter 2002

Problem Set 3

§7.5: 4, 6, 10, 11, 12, 14, 15, 17, 18, 21, 22, 27, 29, 31, 32, 33, 34, 35, 36

1. There are three urns, the first containing a red a and a black ball the second two red ones and the third two black ones. If a ball is chosen at random from one of the urns and it turns out to be red, what is the probability that the other ball in that urn is red?
2. If the numbers $1, \dots, n$ are randomly permuted what is the probability that there will be exactly r numbers between 1 and 2?
3. In a town of n inhabitants, one person tells a rumour to a second person who repeats it to a third, etc. What is the probability that the rumor will be repeated r times without (a) returning to its originator (b) being repeated to any person?
4. A group of $2n$ boys and $2n$ girls is randomly divided into two groups of equal size. What is the probability that each group is equally divided among boys and girls?