

EXERCISES IN STATISTICS

Series A, No. 4

1. Ten jurors are selected at random from a long list of names of which one third belong to women. The selection is regarded as unsatisfactory if either sex is represented by less than three people. Find the probability that the selection will be unsatisfactory.
2. Assume that the distribution of the heights of adult males is approximately normal with a mean of 69 ins and a standard deviation of 3 ins. What is the conditional probability that an individual will be taller than 72 ins if it is known that he is taller than 70 ins.?
3. If x has a p.d.f. $f(x) = 1/3$ for $x = 1, 2, 3$ and $f(x) = 0$ elsewhere, find the p.d.f. of $y = 2x + 1$.
4. Let x have the p.d.f. $f(x) = 1; 0 \leq x \leq 1$. Find the p.d.f. of $y = -2 \log x$.
5. On average, 40% of those who reserve seats by telephone actually arrive at the theatre. A booking clerk has accepted six telephone reservations but has only four vacant seats. What is the probability that persons who have reserved seats will not be accommodated?
6. Equal numbers of men and women are represented on a list of 10 surnames. If the names are paired at random, what is the probability that each of the pairs will be of mixed sex?