EXERCISES IN STATISTICS

Series A, No. 3

1. If $f(x) = a + bx^2; \quad 0 \le x \le 1$, determine a and b such that $E(x) = \frac{3}{4}$.

2. Let $f(x) = 1; \quad 0 \le x \le 1$. Find

   (a) the mean and variance of x,

   (b) the mean and variance of x^2.

3. The probability that x buses will pass me before the 106 arrives is given by $f(x) = \frac{1}{4}\left(\frac{3}{4}\right)^x$. What is the probability that another five buses will pass me before the 106 arrives given that three have already passed?

4. Six dice are tossed. What is the probability that every possible number will occur?

5. How many ways can six people sit down to a table laid for six? How many ways if the table is laid for eight? How many ways if the only concern is who sits next to whom?

6. Ten balls are tossed into four boxes so that each ball is equally likely to fall into any box. What is the probability density function for the number of balls in the last box?

7. Ten percent of the words spoken by a politician are "Er". How many words must he speak so that the probability of at least one "Er" is 0.95?

8. How many different ways are there of putting the spots on a die?