962-05-634 Patricia B. Humphrey* (phumphre@gasou. edu), Dept. of Mathematics and Computer Science, PO Box 8093, Statesboro, GA 30460-8093, and David R. Stone (drstone@gasou.edu), Dept. of Mathematics and Computer Science, PO Box 8093, Statesboro, GA 30460-8093. Runs in Lotto-A Combinatorial Analysis.
A cursory following of the results of common Lotto games shows a surprising number of "runs" of two or more consecutive digits in the winning selections. A number of others including Kaigh (1999) and Kadell and Ylvisaker (1991) have investigated whether or not the selected numbers follow the expected uniform distribution. Starting from a problem posed in Crux Math (\#2421), we show via counting schemes, combinatorial arguments, and simulation the probability of no consecutive numbers. We then expand the arguments to show that for a given lottery consisting of choosing k numbers from $n$, the probability that j runs occur depends only on j , n , and k and is independent of the sizes of the individual runs. These results are compared to actual historical data. (Received September 18, 2000)

