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)