

ZMATH 2014f.00824

Murphree, Emily S.

Replacement costs: the inefficiencies of sampling with replacement.

Math. Mag. 78, No. 1, 51-57 (2005).

Summary: When a sample is chosen with replacement, the same item may be chosen several times. The number of distinct items appearing in the sample is a random variable whose properties are explored in this paper. To avoid combinatorial difficulties, the distribution of the number of distinct items is derived by using a Markov chain approach. Expected values are derived from simple properties of Bernoulli random variables. Finally, the distributional results are used to test a random number generator.

Classification: K65

Keywords: sampling with replacement; Markov chain; Bernoulli random variables; random number generator
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