

sums of discrete uniform random variables

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Let X_1, X_2, X_3, \dots be independent, identically distributed random variables, each uniformly distributed on the set $\{0, \dots, n-1\}$. In other words, each X_i is uniformly distributed mod n .

Prove or disprove:

$(X_1 + \dots + X_k) \bmod m$ is uniformly distributed mod m iff $m|n$.

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