1   New Problems

1. Using the list of cyclotomic polynomials in the notes, can you classify all of the pairs of nonstandard k-dice that have the same sum probability as a pair of standard k-dice? Assume that we're working with typical physical dice here, so that our values of k are limited to the platonic solids (with 4,6,8,12, or 20 sides.)

2. What about triples of k-dice? I.e. are there triples of nonstandard k-dice with the same sum probability as a triple of standard k-dice?

3. What if we relax our condition to simply looking for a collection of two dice (not necessarily with the same number of sides) that has the same sum probability as a pair of k-dice? I.e. are there ways of combining a nonstandard octahedral die and a nonstandard tetrahedral die to get the same sum probability as a pair of cubical dice?

4. Consider the above problem again, except look for triples instead of pairs.