Extra-Credit Quiz #3

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Problem 1. (3 points)

Let X denote the number of $1's$ in 100 throws of a fair die. Find $\mathbb{E}[X^2]$.

Problem 2. (2 points)

If $Var[X] = 0$, then $\mathbb{P}[X = \mathbb{E}[X]] = 1$. *True or false? You do not have to justify your response.*

Problem 3. (2 points)

Let X denote the outcome of a roll of a fair, regular dodecahedron (a polyhedron with 12 faces) with numbers $1, 2, \cdots, 12$ written on its sides. Find $\mathbb{E}[X]$.

Problem 4. (8 points)

Your sample consists of 50 sixth-graders from Kealing Middle School (KMS) and 60 sixth-graders from Murchison Middle school (MMS). The measures of center and spread of the students' heights are:

KMS : the mean of 60 inches with the standard deviation of 1 inch, and

MMS : the mean of 60 inches with the standard deviation of 2 inches.

What are the measures of center and spread for the pooled sample of 110 sixth-graders?