

True/False - No explanation needed. (For each: 1 point if correct, 0 points if not answered, -1 points if incorrect)

1. The law of large numbers implies that for a Geometric distribution X with $p > 0$, the probability $P(X = \infty) = 0$. True/False
2. $E(XY) = E(X)E(Y)$ does not necessarily imply that X and Y are independent. True/False

Problems - Needs justification.

1. I flip a biased coin until I get a heads. If the standard error is $2/3$, what is the expected number of tails I receive before I flip a heads? (10 points)