

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

1. X is a Poisson random variable and Y is a geometric variable counting the number of failures. X and Y have the same range. True/False
2. The St. Petersburg Paradox proves that the expectation of a random variable does not have to be finite. True/False

Problems - Needs justification.

1. Out of the 50,000 people in Hoboken, we expect there to be 10 werewolves.
 - (a) Use **two different** probability distributions to estimate the PMF function of X , where X is the number of werewolves in Hoboken. You only need write a formula, not calculate the actual value.
 - (b) Do you expect the PMF functions to be close to each other or not? Why?

(10 points)