Math 5710 Wednesday, 7/22/20 Quiz 22

1. What is your name?

Brock Francom

2. In Glossary Entry 044B, geometric random variables are classified as *discrete* rather than *continuos*. However, Rice is quoted in that note as follows: " The **geometric distribution** is also constructed from independent Bernoulli trials but from an infinite sequence."

Write a paragraph that explains why Rice's statement is accurate although geometric random variables are discrete functions rather than continuous functions.

A bernoulli trial has an outcome of 0 or 1, as does a geometric trial would, but geometric distributions keep taking trials until a success, or 1 is observed. That means it could be an infinite sequence of failures before a success is observed.

3. Also write a paragraph that explains why for a geometric experiment that for $k$ trials, it is necessary for $k$ to be an element of { 1, 2, 3, ... } rather than { 1, 2, 3, ..., $n$ } for some natural number $n$ }.

This is because we have no way of knowing n beforehand. we cannot limit k, because we may have n+1 failures before a success, and therefore $k \neq n$. That is why k must be an element of $\{1, 2, 3, \ldots\}$.

3. Smile.