In-Recitation Quiz (Cover Pset6)

Name: _____ Signature: _____
NetID: _____ RUID: _____

Quiz Instructions:

- Indicate your answer in the box provided. Answers indicated elsewhere will not be graded and receive a zero grade, irrespective of the correctness.
- **CREDIT** is only given for **CORRECT** answers and **NO PARTIAL CREDIT**.

Problem 3.7.1

Grade:

Faculty Comments

Starting on day $n = 1$, you buy one lottery ticket each day. Each ticket costs 1 dollar and is independently a winner that can be cashed for 5 dollars with probability 0.1; otherwise the ticket is worthless. Let X_n equal your **net profit** after **n** days. What is $\mathbb{E}[X_n]$?
Hint:

1. What is the PMF ($\mathbb{P}(X)$) and the Expectation ($\mathbb{E}[X]$) of **one day's** net profit?
2. What is the relationship between $\mathbb{E}[X]$ and $\mathbb{E}[X_n]$?

Answers: