

Exam 2 Practice - Version 1

Math 2030 - Elementary Probability

Due 22 July 2021

Question 1

Suppose that you have an atom standing at 0. It moves forward by 1 spot with probability $\frac{1}{8}$ it moves forward by 2 spots with probability $\frac{1}{16}$ and it moves backwards by 1 with probability $\frac{13}{16}$. What is your standard deviation on the location of the atom after 100 movements? (Assume each movement is independent; use random variables and give four decimal points)

Question 2

You're working at a local fast food restaurant and your store gets 2 customers per minute. What's the probability that you get at most 2 customers during the five minute break you took after the 597th customer? (Give four decimal points and use random variables)

Question 3

The power suddenly goes out and it's nighttime. You go to your cupboard and notice you only have 3 candles. On average each candle will last 4 hours. Assuming you use one candle until it runs out and then the second candle and then the third, what is the probability that they will last at least 10 hours? (Give four decimal points and use random variables)

