

MATH 241 Chapter 4 part 3 Live Exercises

1. Find the probability that a randomly selected Vassar student has odd number of siblings, if the average number of siblings is 1.73.
2. If you buy a lottery ticket in 50 lotteries, in each of which your chance of winning a prize is $1 / 100$, what is the (approximate) probability that you will win a prize
 - (a) at least once?
 - (b) exactly once?
 - (c) at least twice?
3. $X \sim P(\lambda)$. Which is the following is FALSE?
 - (a) The mean and standard deviation of X are different.
 - (b) Pmf of X can be a decreasing function.
 - (c) λ can only take values $0, 1, 2, \dots$
 - (d) None of the above.
4. X denotes the number of times a die is rolled until 6 is obtained.
 - (a) What are the odds we have to roll it 10 or more times?
 - (b) How many times do we expect to roll?
 - (c) Find $Var[X]$.
5. Consider independent trials with success probability p . Let $q = 1 - p$. What's the probability of getting r successes before m failures?
 - (a) $p^{r-1}q^m$
 - (b) $\binom{r+m-1}{r-1}p^{r-1}q^m$
 - (c) $\sum_{k=r}^{r+m} \binom{k-1}{r-1}p^r q^{k-r}$
 - (d) $\sum_{k=r}^{r+m-1} \binom{k-1}{r-1}p^r q^{k-r}$