**Worksheet 6 – Chapter 4a**

Answer the following questions logically and legibly. Show work and give probability statements where appropriate.

1. Classify the following random variables according to whether it is discrete or continuous
   1. The number of cups of coffee sold in a cafeteria during lunch
   2. The height of a player on a basketball team
   3. The blood pressures of a group of students the day before the final exam
   4. The temperature in degrees Fahrenheit on July 4th in Juneau, Alaska
   5. The number of goals scored in a soccer game
   6. The speed of a car on a Los Angeles freeway during rush hour traffic
2. Calculate the mean and standard deviation for the discrete probability distribution shown here.

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| --- | --- | --- | --- | --- |
| X | 2 | 3 | 5 | 7 |
| P(X) | .2 | .3 | .3 | .2 |

**You may want to use the Binomial and Poisson equations in EXCEL to answer these questions (pages 64-70 in Excel Manual). Be sure to show your work and give proper probability statements.**

1. A student majoring in accounting is trying to decide on the number of firms to which he should apply. Given his work experience and grades, he can expect to receive a job offer from 70% of the firms to which he applies. The student decides to apply to only four firms. Let X be the number of job offers the student receives. X then follows a binomial distribution.
   1. What is the probability that he receives at least one job offer?
   2. What is the probability that he receives a job offer from all four firms?
   3. How many job offers should he expect to receive?
2. Officer Thompson of the Bay Ridge Police Department works the graveyard shift. He averages 4.5 calls per shift from his dispatcher. Assume the number of calls follows a Poisson distribution.
   1. What is the probability that Officer Thompson gets fewer than 2 calls in a shift?
   2. What is the probability that Officer Thompson gets at least one call in a shift?
   3. What is the probability that he gets 20 calls in a week (**five shifts)**? (Hint: if there is on average 4.5 calls per shift and it is the same for each shift you would expect an average of 4.5\*2 = 9 in two shifts)
   4. What is the mean and standard deviation for the number of calls he gets in a week (5 shifts)?