

**Binomial Distribution:**

Work through the "Binomial Example" worksheet located inside the Excel file. This example shows how to create a Binomial Probability Distribution.

Work questions 1 and 2 listed below using Excel. For each question, create the entire binomial distribution for the situation described in the question. The "BINOMDIST" function will calculate the probability results. You'll need to create a binomial distribution table **and** distribution graph for each problem. Use the table you build to answer all the probability questions. Show your work.

- 1) **Basketball Fans:** Fifty-four percent of men consider themselves basketball fans. You randomly select 10 men and ask each if he considers himself a basketball fan. Find the probability that the number who consider themselves basketball fans is
  - a. **Exactly eight**
  - b. **At least eight**
  - c. **Less than eight**
  
- 2) **Favorite Cookie:** Ten percent of adults say oatmeal raisin is their favorite cookie. You randomly select 12 adults and ask each to name his or her favorite cookie. Find the probability that the number who say oatmeal raisin is their favorite cookie is
  - a. **Exactly four**
  - b. **At least four**
  - c. **Less than four**

**Poisson distribution:**

Work through the "Poisson Example" worksheet located inside the Excel file. This example shows how to create a Poisson Probability Distribution.

Work questions 3 and 4 listed below using Excel. For each question, create the entire Poisson distribution for the situation described in the question. The "POISSON" function will calculate the probability results. You'll need to create a Poisson distribution table **and** distribution graph for each problem. Use the table you build to answer all the probability questions. Show your work.

- 3) **Major Hurricane:** A major hurricane is a hurricane with wind speeds of 111 miles per hour or greater. During the 20<sup>th</sup> century, the mean number of major hurricanes to strike the U.S. mainland per year was about 0.7. Find the probability that in a given year:
  - a. **Exactly one hurricane will strike the U.S. mainland**
  - b. **At most one hurricane will strike the U.S. mainland**
  - c. **More than one hurricane will strike the U.S. mainland**
  
- 4) **Precipitation:** The mean number of days with 0.01 inch or more precipitation per month for Lewistown, Idaho, is about 8.7. Find the probability that in a given month:
  - a. **There are exactly 9 days with 0.01 inch or more precipitation**
  - b. **There are at most 9 days with 0.01 inch or more precipitation**
  - c. **There are more than 9 days with 0.01 inch or more precipitation**