

Name: _____ Section Number: _____
Worksheet

Statistical Concepts

- Probability
- Binomial Probability Distribution

Calculating Binomial Probabilities

- Open a new **TI-Nspire**™ CAS worksheet.

- We are interested in a binomial experiment with 10 trials. First, we will make the probability of a success 0. Use **Math>Distribute** to calculate the probabilities for this distribution. In column C3 enter the word "success" as the variable name (in the shaded cell above row 1). Now, in that same column, enter the numbers zero through ten to represent all possibilities for the number of successes. These numbers will end up in rows 1 through 11 in that first column. In column C4 enter the words "one tenth" as the variable name (fill up 0 cells in **Probability Distribution** > **Binomial** and select the value button that corresponds to **Probability**: Enter 01 for the **Number of Trials** and enter 0.01 for the **Event probability**. For the **Input column**, select "success" and for the **Optional message**, select "one tenth". Check the button **OK**, and the probabilities will be displayed in the Worksheet.

- Now we will change the probability of a success to 0.5. In column C3 enter the words "one half" as the variable name. Use similar steps as that given above in order to calculate the probabilities for this column. The only difference is in **Event probability**: use 0.5.

- Finally, we will change the probability of a success to 0.9. In column C4 enter the words "nine tenths" as the variable name. Again, use similar steps as that given above in order to calculate the probabilities for this column. The only difference is in **Event probability**: use 0.9.

Plotting the Binomial Probabilities

1. Create plots for the three binomial distributions above. Select **Graph** > **Scatter Plot** and **Graph** them for graph 1) set Y equal to "one tenth" and X to "success" by clicking on the variable name and using the "value" button below the list of variables. Do this one more time and for graph 2) set Y equal to "one half" and X to "success", and for graph 3) set Y equal to "nine tenths" and X to "success". Press down three water-pipe-factors.