

# Is What Should Happen What Will Happen?



*What is theoretical probability?*

*How many faces does a number cube have?* \_\_\_\_\_

*What is the probability that a:*

*1 will be rolled?* \_\_\_\_\_

*4 will be rolled?* \_\_\_\_\_

*2 will be rolled?* \_\_\_\_\_

*5 will be rolled?* \_\_\_\_\_

*3 will be rolled?* \_\_\_\_\_

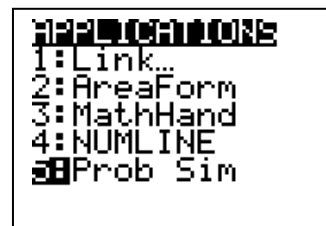
*6 will be rolled?* \_\_\_\_\_

*What is experimental probability?*

Use the graphing calculator to conduct an experiment. Follow the directions below.

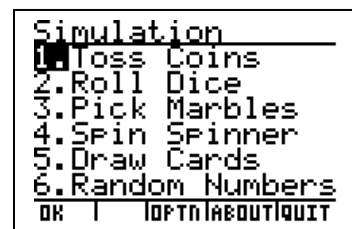
Step 1:

Press the **APPS** key then press **0** which is Prob Sim. Press any key to open Probability Simulation.



Step 2:

Press **ZOOM** which will access the option menu on the bottom of the screen. Type the last four digits of your phone number and then press the **GRAPH** key.



Step 3:

Press **2** which is Roll Dice. Press **ZOOM** to change the settings. Change the trial set to 60 and press **GRAPH**.

Step 4:

Now, it is time to start the experiment. Now press **WINDOW** and the calculator will roll the number cube 60 times.

Use the right arrow to see how many times the 1 was rolled.

*What fraction of the 60 rolls were a:*

1? \_\_\_\_\_

3? \_\_\_\_\_

5? \_\_\_\_\_

2? \_\_\_\_\_

4? \_\_\_\_\_

6? \_\_\_\_\_

This is the experimental probability.

*Is the experimental probability close to the theoretical probability?*

*When you look at the bar graph on the calculator, what should the bars look like when the experimental probability is the same as the theoretical probability?*

Step 5:

Continue pressing the **WINDOW** key to roll the number cube until all the bars on the bar graph are the same height.

*How many rolls did it take in order for the theoretical probability and experimental probability to be the same?*

*Compare your response to the question above with other students. What do you notice?*