Math 3A, the Urban School of San Francisco Name:________________________

Rolling Dice

1. Roll forty 10-sided dice, and remove the dice that came up with a 0. Repeat this over and over. Record the results in the second column below:

How many dice are left?

How many rolls	Your experiment	Class average	Theory
0	40	40	40
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

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Rolling Dice (cont)

2. Fill out the "class average" column.

3. Enter the class average data in your calculator, using STAT, EDIT. Graph them using STAT PLOT.

4. Fill out the "theory" column, by figuring that on average, about 10% of the dice get removed each time. Round the numbers to the nearest whole number.

5. Write an equation for f(x), the theoretical number of dice left after x rolls. Graph the function on your calculator, and check that it is a good model for the data.

6. What is the independent variable for f(x)? What is the dependent variable?

7. What are the domain and range of f(x)?

8. Is f(x) continuous or discrete?

9. Does f(x) have a y-intercept? What is its significance?

10. Does f(x) have an x-intercept? What is its significance?

Because x is in the exponent, this function is called an *exponential function*. You will learn much more about exponential functions in this course.