Modeling Exponential Growth and Decay Using Skittles

$$y = a(b)^x$$

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3 Things I Learned Today

1.

2.

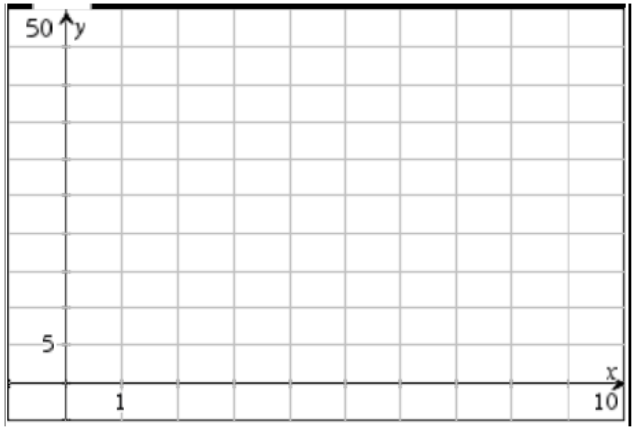
3.

The Exponential Growth of Skittles

Start with one skittle. Place it in a cup, shake it, and then empty it on the desk. If the letter S is showing, place it back in the cup. If there is no S, add another candy and place both in the cup. Empty the cup again. For every candy not displaying a S, add another one and place it in the cup. Repeat for up to 10 trials or until you run out of candy. Record the data in the table below.

Trial	0	1	2	3	4	5	6	7	8	9	10
Candies	1										

Sketch a graph of the data collected in your growth experiment.



Find a linear and exponential regression that fit your data. How many candies would you have on trial 100 using each model?

Linear Regression: _____ Linear Prediction: _____

Exponential Regression: _____ Exponential Prediction: ____

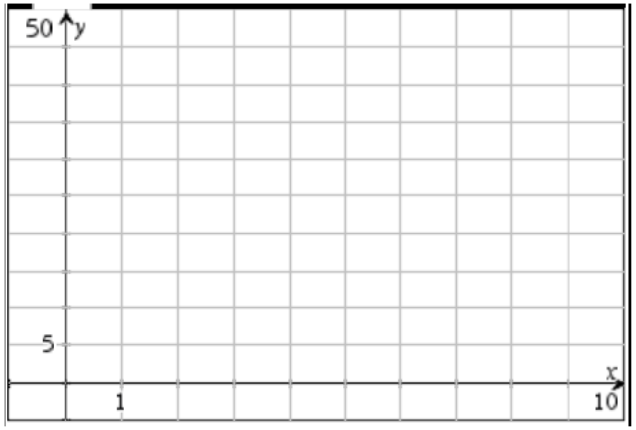
Which equation do you think fits best and why?

The Exponential Decay of Skittles

Start with all of your candies. Count them and record this number as trial 0. Place them in the cup. Empty them out. If the S is showing, place them back in the cup. If there is no S showing, place them to the side. You may eat these candies. Empty the remaining candies and repeat the above step until you have less than 5 skittles but greater than 0 skittles.

Trial	0	1	2	3	4	5	6	7	8	9	10
Candies											

Sketch a graph of the data collected in your decay experiment.



Find a linear and exponential regression that fit your data. How many candies would you have on trial 10 using each model?

Linear Regression: _____ Linear Prediction: _____

Exponential Regression: _____ Exponential Prediction: ____

Which equation do you think fits best and why?