Name ____ Date __________________

Writing, Graphing, and Interpreting Exponential Functions

Explore

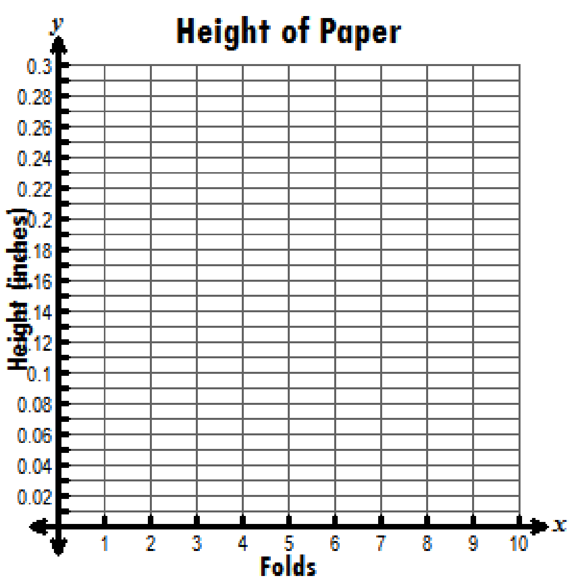
Directions: For both situations below, generate a table of values. Then, use your graphing calculator to make a scatterplot of each situation. Identify the parent function and then use your graphing calculator to generate a function that models the data for *n* folds. When you have done so, answer the debriefing questions.

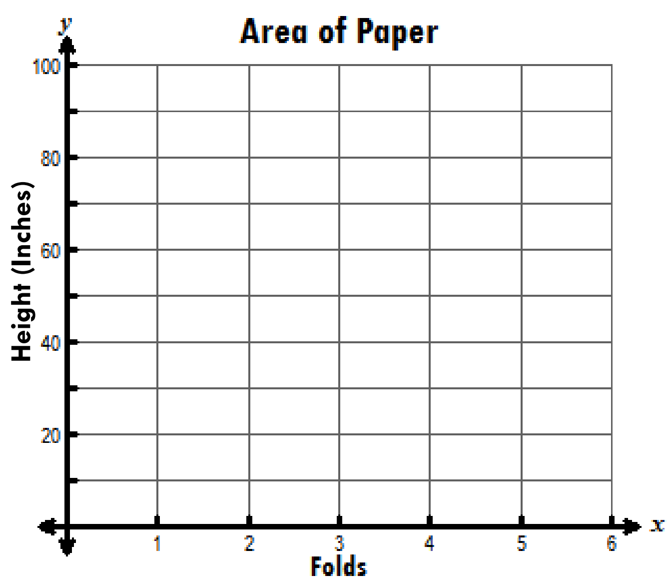
Situation 1: A sheet of paper is folded in half and then folded in half again. If one sheet of paper is about 0.004 inches thick, what will be the height of the paper after 10 folds?

Number of Folds (n)	Process	Height of Paper (in.) $h(n)$
0	0.004	0.004
1	$0.004 \cdot 2$	
2		
3		
4		
5		
n		

Situation 2: A sheet of paper is folded in half and then folded in half again. If the area of one sheet of paper is 93.5 in^2, what will be the area of the paper after 10 folds?

Number of Folds (n)	Process	Area of each Region (in.^{2}) $A(n)$
0	93.5	93.5
1	$93.5 \cdot \frac{1}{2}$	
2		
3		
4		
5		
n		





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Debriefing Questions:

1. What patterns do you notice in the tables of values?

2. How does the shape of each graph compare?

3. How do the constants in each function relate to the parameters in the problem?

4. How can you determine the height or area of the paper after 10 folds?