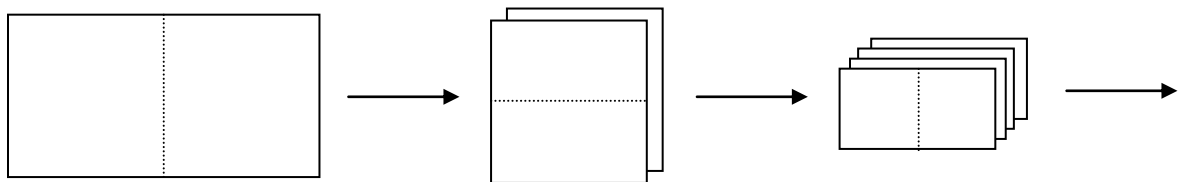


Exponential Decay

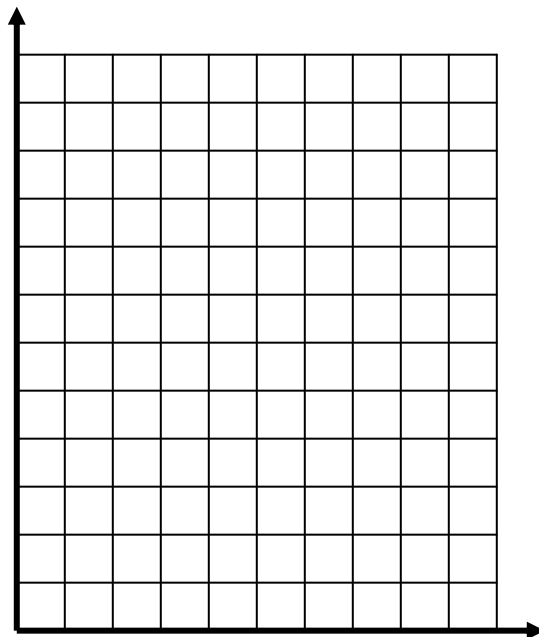
In the activity on exponential growth, you read about the ballots that Alejandro was making for an election. Recall that Alejandro cut a sheet of paper in half, stacked the two pieces and cut them in half, and then stacked the resulting four pieces and cut them in half.



In the activity on exponential growth, you investigation the pattern in the number of ballots created by each cut. In this activity, you will look at the pattern in the areas of the ballots.

1. The sheet of paper Alejandro started with had an area of 64 in^2 . Complete the table below to show the area of a ballot after each of the first 10 cuts. Graph the data from the table on the grid. Be sure to label the grid and mark the scale.

#Cuts	Area (sq in)
0	64
1	32
2	16
3	
4	
5	
6	
7	
8	
9	
10	



2. How does the area of a ballot change with each cut?

3. How is the pattern of change in the area different from the exponential growth patterns that you have seen in the previous lesson?
4. What is the decay factor? _____
5. What is the exponent? _____
6. Write an equation that represents the table. _____
7. 12 cuts would result in an area of _____ in²
8. 15 cuts would result in an area of _____ in²

Use the table below.

x	y
0	6561
1	2187
2	729
3	243
4	81

9. What is the initial amount?
10. What is the decay factor?
11. What is the exponent?
12. Write an equation to represent the table.

Use the table below.

X	y
2	16807
3	2401
4	343
5	49
6	7

13. What is the initial amount?
14. What is the decay factor?
15. What is the exponent?
16. Write an equation to represent the table.