

Day 00 Intro to Unit 6: Mitosis Problem

Name Master G
Date _____ Block 2

Mitosis is a process of cell duplication in which one cell divides into two. The eschericia coli is one of the fastest growing bacteria. It can reproduce itself in 15 minutes. If you begin with one eschericia coli cell, find the number of cells for each 15-minute interval in the chart and answer the questions below.

1. Fill in the rest of the chart to recognize the cell's pattern. Describe the pattern.

It is multiplied by 2 each 15 min interval

2. What member of the function family do you think this pattern models and why?

Exponential

3. Using your calculator or Desmos, enter the 15-minute intervals into L₁ and the corresponding total number of cells into L₂.
4. Make a scatter plot of the data.
5. Find the regression equation. *Hint: It is not a linear or quadratic function!*

$f(x) = 2^x$

STAT → CALC → EXPREG

6. How many cells will there be in one hour?

$\frac{60}{15} = 4$ 15 min

16

7. How many cells will there be in 24 hours?

$\frac{1440}{15} = 96$

7.92×10^{28}

15-minute Intervals	Total # of cells	Pattern
0	1	
1	2	
2	4	
3	8	
4	16	
5	32	
6	64	
7	128	
8	256	

9 512

8. Draw a sketch of your model below and list everything you observe about the function.

