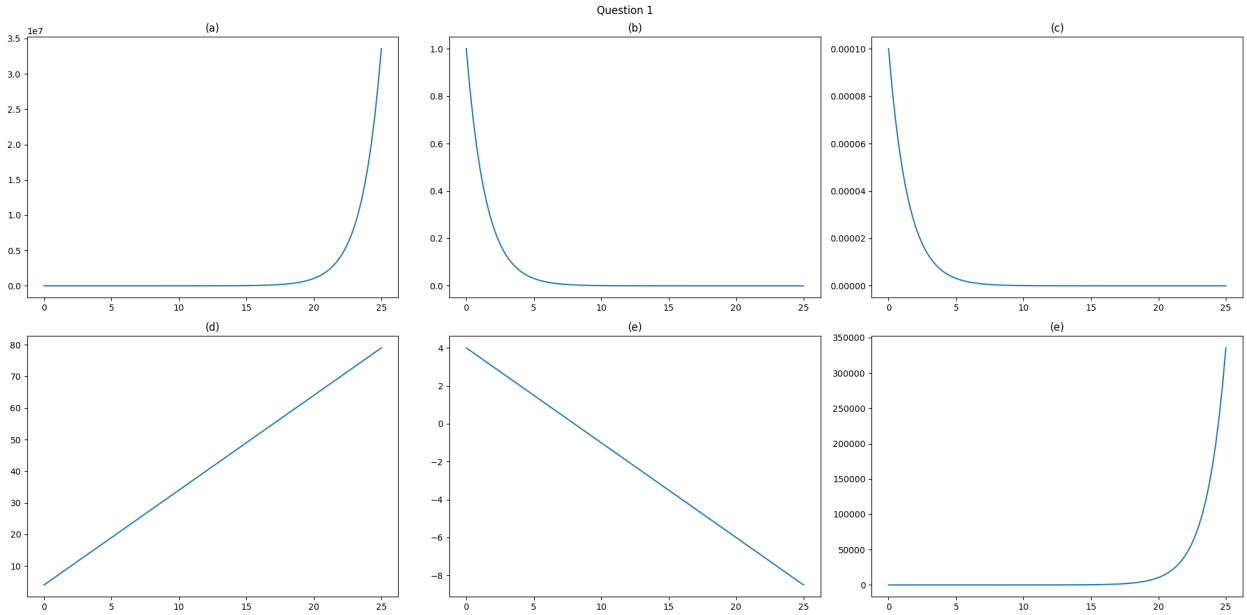
Name: _____ Date: _____

Class: _____ Teacher: _____

Math Mini Quiz 5

This Mini Quiz, we're going to explore the math concepts that you've learned so far in this unit. This assignment should take you about **15 minutes**.

1) Mark each of the following situations as exponential decay (ED), exponential growth (EG), or linear (L). Justify your answer.



a) *EG - curves up from 0*

b) *ED - gets infinitely close to 0 as x increases*

c) *ED - gets infinitely close to 0 as x increases*

d) *L - shows a straight line, indicating a constant rate of change*

e) *L - shows a straight line, indicating a constant rate of change*

f) *EG - curves up from 0*

(yes, there's a back, don't forget it)

**note that actually the train would slow down as it approaches, but we are simplifying this problem*

You're taking a shower and you realize you have a mold problem. The mold currently covers one whole tile of your shower.

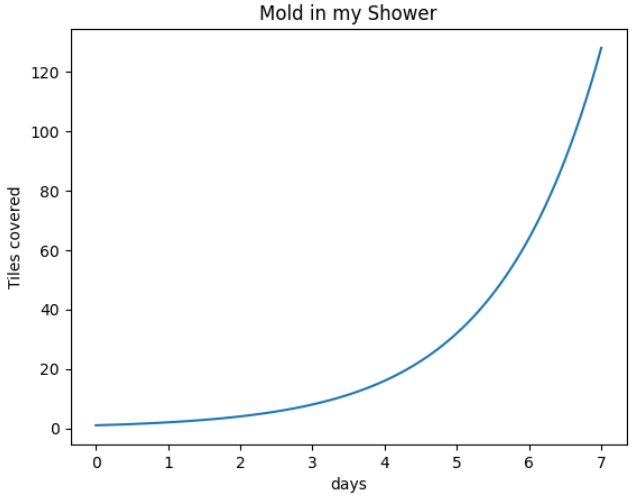
You do some research and you learn that each mold spore releases 2 new ones when it dies, that's to say *each mold spore turns into two*. This cycle happens once every day.

You realize one whole tile is covered in mold.

2) Write a function *M(d)* to represent the number of tiles covered with mold after ***d*** days.

$$M(d) = 1(2)^d$$

3) Graph your function on the plot below.



4) Is this model exponential decay (ED), exponential growth (EG), or linear (L)? How do you know?

Exponential Growth because it increases with a curve, doubling each day. We can also tell from looking at the equation and seeing that it is of the form $y = ab^x$

5) If you have 100 bath tiles in the shower, how long will it take for the whole shower to be covered?

To answer this question, look the way the function progresses

Day	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Moldy Tiles	*1*	*2*	*4*	*8*	*16*	*32*	*64*	*128*

So, after the 7th day, all 100 tiles will be covered

The end, good job :)