**Introduction to Exponential Functions**

1. Simplify the following

a) b)

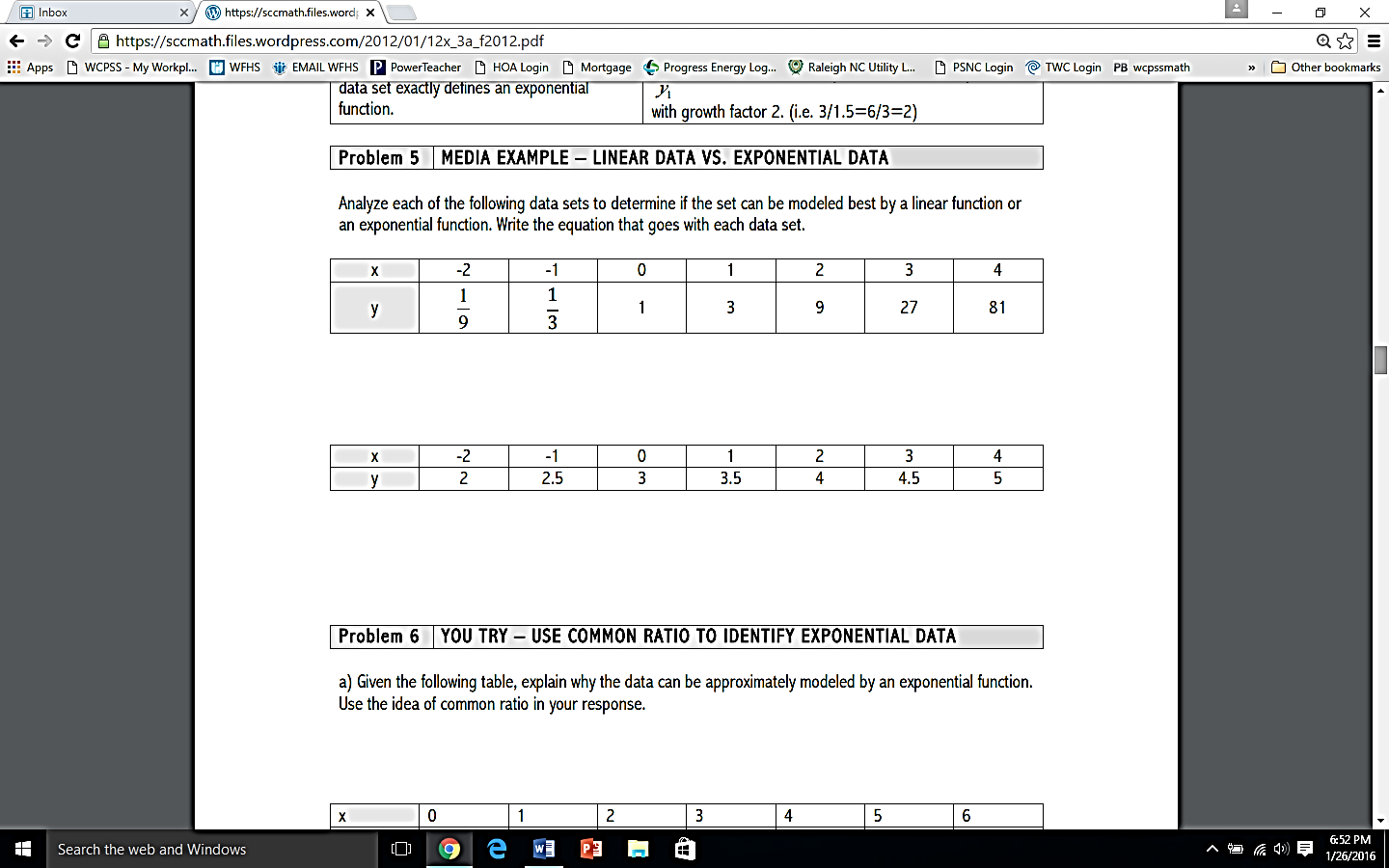
c) d)

e)

2. Identify each sequence as arithmetic or geometric. Write the recursive form and explicit form for each.

a) 1600, 400, 100, 25, … b) 14, 21, 28, 35, …

3. Does the table of values represent a linear function or an exponential function? Explain.



Exponential Functions are of the form

a = INITIAL VALUE

b = BASE (also called the growth or decay factor)

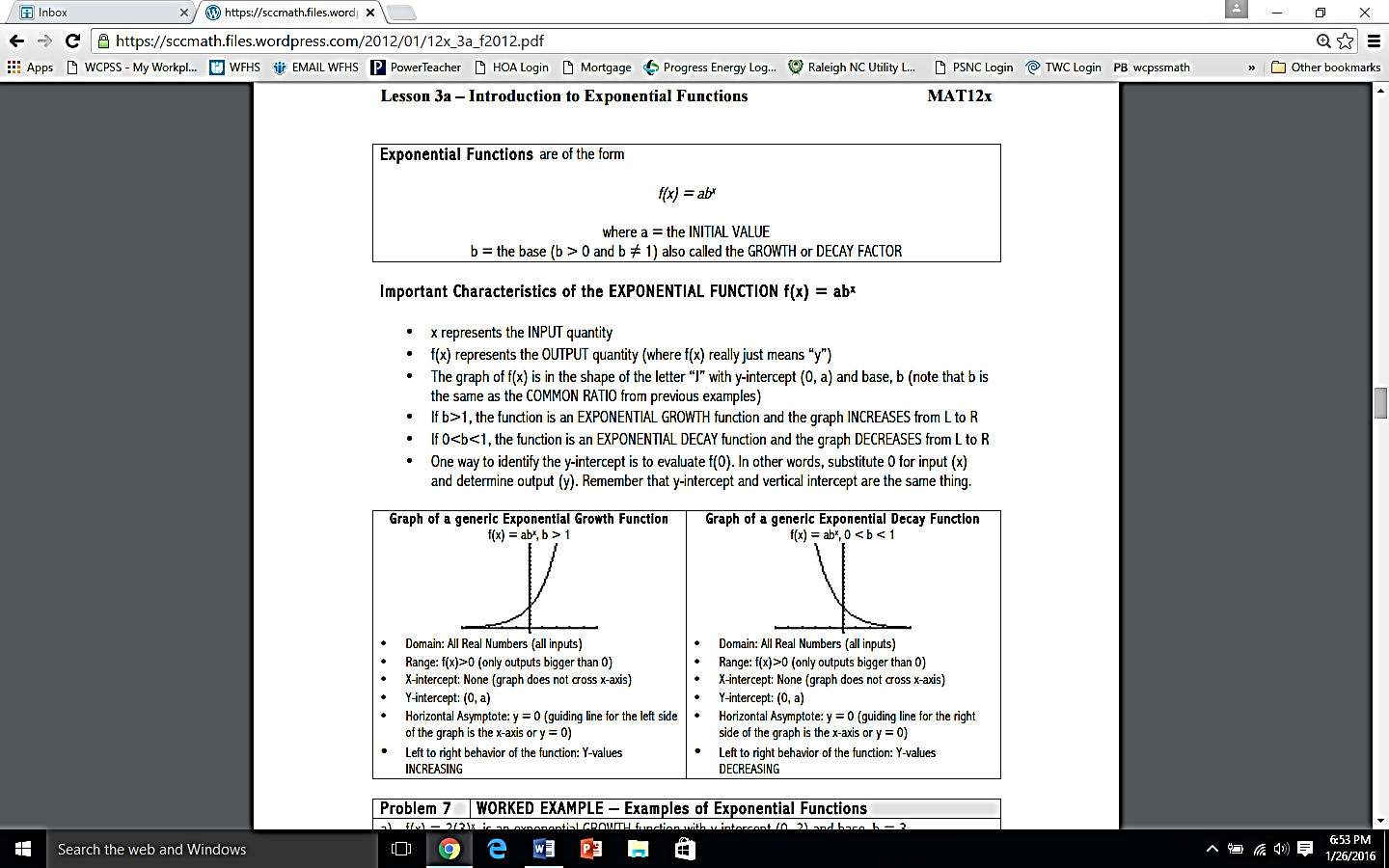
x represents the INPUT

f(x) or y represents the OUTPUT

the y-intercept occurs at (0, a) and the base b represents the common ratio as seen with geometric sequences

if the base is greater than 1, the function is exponential growth

if the base is between 0 and 1, the function is exponential decay

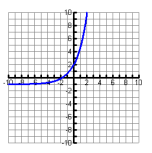
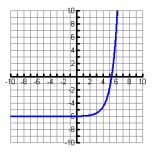
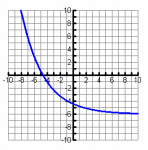


What do you know?

**Exponential Functions**

***Determine whether each function is exponential growth or exponential decay.***

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1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. Suppose an investment of $10,000 doubles in value every 13 years. How much is the investment worth after 52 years?

11. A population of 100 insects triples in size every month. Write an equation and find how many insects there are after 5 months.

12. A tennis match begins with 64 players. Each round, half of the players are eliminated. Write an equation and find out when there will be a winner (i.e., one player left).

13. You drop a ball from a height of 12 feet. Each path has 3/5 the height of the previous path. Write an equation and find the height at the top of the fourth path.

