<u>Week 6 Online Learning</u>

Week of May 4th covers Algebra Nation Section 7: Topic 5 and section 7 wrap-up. Use the Algebra Nation workbook and practice book you already have for Day 1.

Day 1: Section 7 – Topic 5: Growth and Decay Rates of Exponential Functions
     Watch the video on Algebra Nation & Complete Workbook p. 187 – 190
     Complete Practice Book p. 115 – 116 #1 – 5

Day 2: Growth and Decay Rates of Exponential Functions Practice #1 – 5

Day 3: Growth and Decay Rates of Exponential Functions Practice #6 – 10

Day 4: Exponential Functions Maze (Section 7 Wrap-Up)

Day 5: Quiz covering Section 7 – Topic 5

*<u>Directions</u>: Show ALL work; box/circle answer(s) unless there is a line for the answer.
     <u>Due</u>: Friday, May 8th by 10pm on Focus

♡ Ms. Register   Website: www.MsRegister.weebly.com

Office Hours: 9:00am – 10:00am   Email: registere@leonschools.net
                 1:00pm – 2:00pm

<u>Day 2 – Growth and Decay Rates of Exponential Functions Practice</u>

Directions: Answer each question. Show <u>ALL</u> work.

1. $y = 100(1.25)^t$

    A. Does this function represent exponential growth or decay? _____

    B. What is your initial value? _____

    C. What is the rate of growth or rate of decay? _____

2. Fred's bank account balance started with $325, he has an annual interest rate of 4%. He wants to know how much money he will have in his account in 12 years.

    $_____after 12 years

3. The population of Sanibel, Florida can be modeled by $P = 6191 \cdot 1.05^t$, where t is the number of years since 2016. What was the population in 2016? What percent did the population increase by each year?

    Increased by _____% each year

4. Your entry level position at the law firm is $34,000 and it increases by 2.5% each year.

    a) Write an exponential function to represent this situation. _____

    b) What will your salary be in 5 years? Round your answer to the nearest dollar.

    $_____ salary in 5 years

5. An adult takes 400mg of vitamin c. Each hour, the amount of vitamin c in the person's system decreases by about 29%. How much vitamin c is left after 6 hours?

    _____ left after 6 hours

<u>Day 3 — Growth and Decay Rates of Exponential Functions Practice</u>

Directions: Answer each question. Show <u>ALL</u> work.

6. $y = 5575 \cdot (0.65)^t$

    A. Does this function represent exponential growth or decay? _____

    B. What is your initial value? _____

    C. What is the rate of growth or rate of decay? _____

7. In 2008, there were 285 cell phone subscribers in the small town of Berrydale. The number of subscribers increased by 75% per year after 2008. How many cell phone subscribers were in Berrydale in 2017?

                                           _____ subscribers in 2017

8. Your car cost $42,500 when you purchased it in 2017. The value of the car depreciates by 15% annually.

    a) Write an exponential function to represent this situation. _____

    b) How much will your car be worth in 2024? Round your answer to the nearest dollar.

                                       $_____ in 2024

9. A newly hatched channel catfish typically weighs about 0.06 grams. During the first 6 weeks of life, its weight increases by about 10% each day. Write a function to model the situation. How much does the catfish weigh after 6 weeks?

                             Function: _____

                         Catfish weighs _____ after 6 weeks

10. You bought $2,000 worth of Math Nation stocks in 2014. The value of the stocks has been increasing by 10% each year.

    a) Write an exponential function to represent this situation. _____

    b) What will your stocks be worth in 2020? Round your answer to the nearest dollar.

                                       $_____ in 2020

Day 4 – Exponential Functions Maze

START

Ty deposited $400 into a savings account that earns 5% interest annually. Let x be the number of years since Ty invested his money.

$f(x) = 400(1.05)^x$

$g(x) = 20(0.87)^x$

decreasing

The function $v(x) = 16,000(0.91)^x$ models the value of Ali's car, where x represents the number of years since she purchased the car.

$f(x) = 400(1.5)^x$

increasing

growth

decay

$m(x) = 1200(1.25)^x$

initial value of 1200

$r(x) = 5(1.5)^x$

y-intercept = 0

growth

y-intercept = 1

decay

y-intercept = 5

y-intercept = 7.5

The function $f(x) = 50(0.8)^x$ models the number of ants in Jo's ant farm after it is stricken by a plague, where x represents the number of weeks since Jo's first ant became sick.

growth rate of 32%

$k(x) = \frac{1}{2}(1.32)^x$

decay rate of 68%

$h(x) = 68(0.32)^x$

Decay rate of 80%

initial value of 50

Growth rate of 132%

initial value of 32

decreasing

$n(x) = -12(1.03)^x$

initial value of 103

A class science experiment to measure the growth of bacteria starts with 70 cells that triple every hour.

growth rate of 70%

Ian is 60 inches and going through a growth spurt. For the next year, his growth will increase by 1% each month.

growth rate of 103%

$t(x) = 64(0.5)^x$

$b(x) = 70(3)^x$

y-intercept = 0

growth rate of 1%

The NCAA Basketball Championship (March Madness) starts with 64 teams going into Round 1 and each round is half the number of teams playing in the precious round.

y-intercept = 32

initial value of 4

FINISH