Lesson 2 Assessment

1) $y = -x + 8$

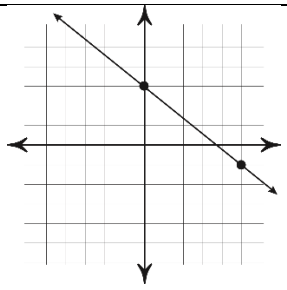
2)

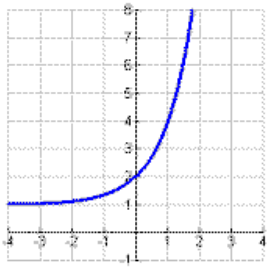
x	y
0	2
1	4
2	8
3	16

3) $y = 6 \cdot 3^x$

4)

x	1	3	7	11
$g(x)$	4	9	19	12

5) 

6) 

7)

x	y	ratio of y - values
0	4	$\frac{12}{4} = 3$
1	12	$\frac{36}{12} = 3$
2	36	$\frac{108}{36} = 3$
3	108	$\frac{324}{108} = 3$
4	324	

8) $y = -90 \cdot 5^x$

9) Ms. Wraley started with $20 and her money quadruples each day.

10) Ms. Petrin has $1000 and spends $5 each day.

Name: _____Period: _____ Date: _____

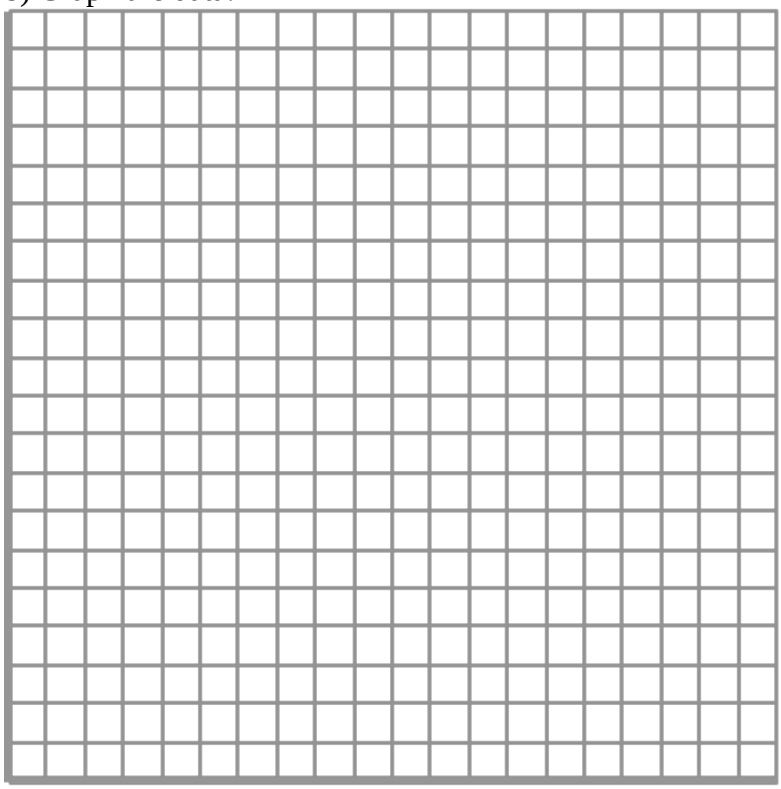
Topic 15 HW#3 – Exponential Growth and Decay

1) A biology class started out with 10 mealworms for an experiment. The population of worms will double every month. How many mealworms will the class have after 5 months?

a) Complete the table below to show the number of mealworms the class has each month.

Number of Months	**0**	**1**	**2**	**3**	**4**	**5**
Number of Bacteria	**10**					

b) Graph the data.



c) Write a rule to model the number of mealworms. _____

d) Does the data show exponential growth or decay? _____

Justify your answer.

_____

_____

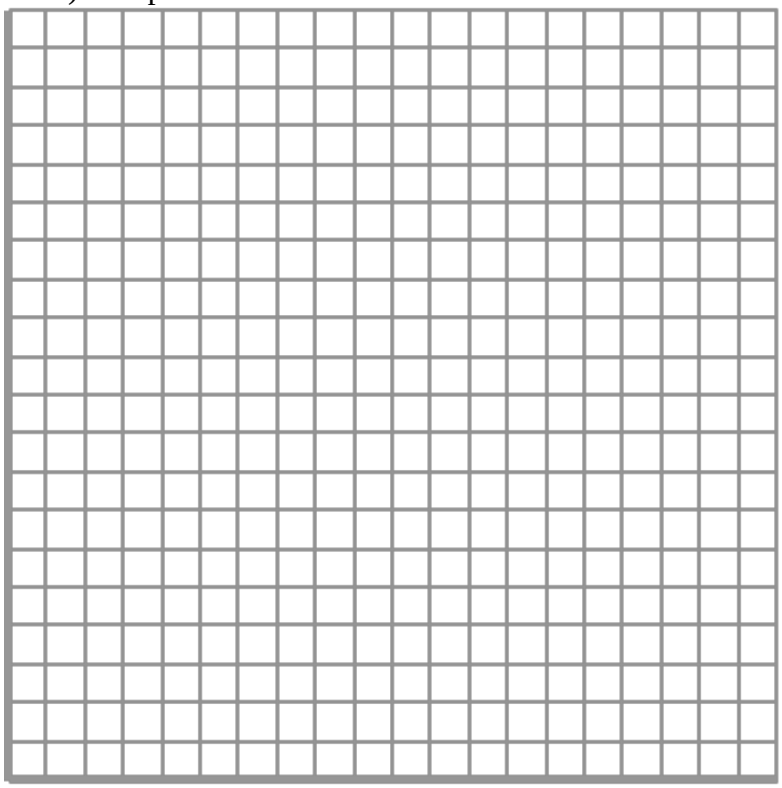
_____

2) Each year the local country club sponsors a tennis tournament. Play starts with 128 participants. During each round, half of the players are eliminated. How many players remain after 5 rounds?

a) Complete the table below to show the number of players remaining in each round.

Round Number	**0**	**1**	**2**	**3**	**4**	**5**
Number of Players	**128**					

b) Graph the data.



c) Write a rule to show the number of tennis players? _____

d) Does the data show exponential growth or decay? _____
Justify your answer.

_____

_____

3) How are the graphs in #1 and #2 similar?

_____

_____

4) How are the graphs in #1 and #2 different?

_____

_____

Lesson 4 Assessment

Name: _____

Period: _____ Date: _____

Modeling Exponential Growth

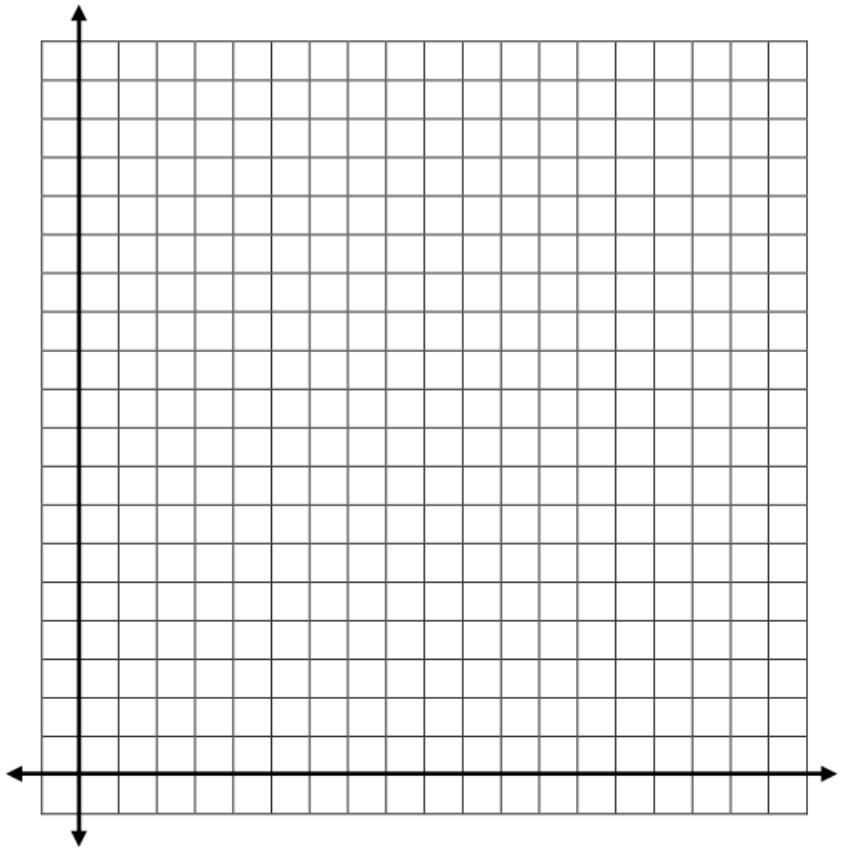
For each exponential story problem do the following:

- Writing a function rule
- Creating a table of values
- Graphing the data
- State whether the graph shows growth or decay
- Answerthe accompanying questions

1. Zombie Apocalypse

A virus is turning people in Zombies! When the virus started spreading there was only one Zombie and the number of Zombies quadruples every week.

x	y



Function rule: _____

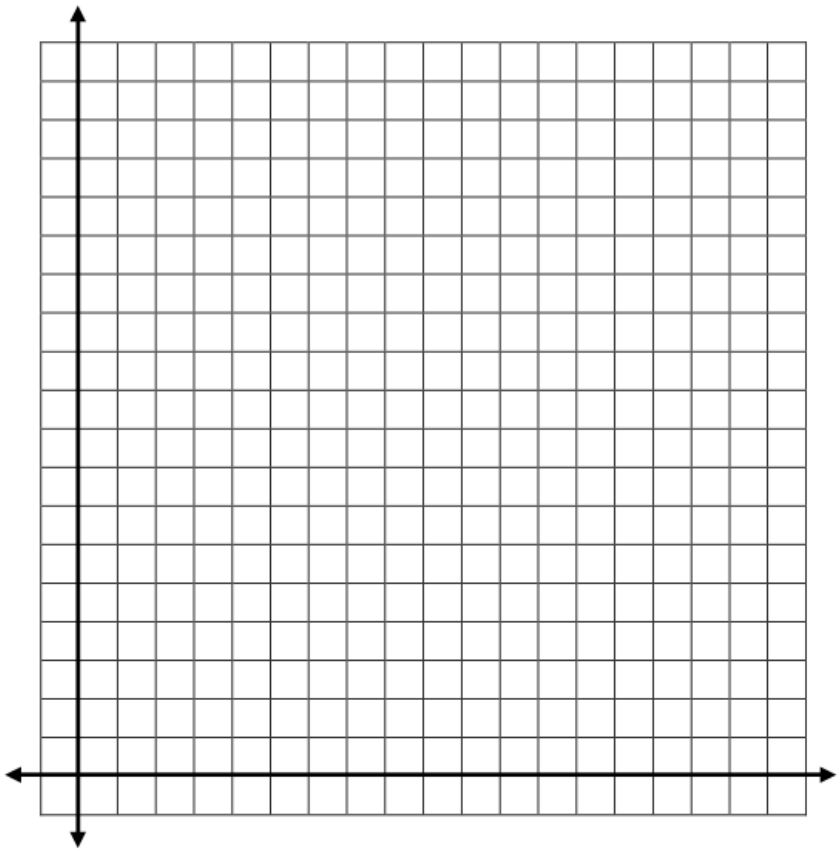
Question 1. How many Zombies will there be after 15 weeks?

Question 2. When there are 1,000,000 people who have turned into Zombies the World Health Organization (WHO) will call the virus a pandemic. After how many weeks will there be a pandemic?

2. Eagle Creek

At Eagle Creek Park there is a population of deer. When the deer first moved into Eagle Creek there were 4 deer and the number of deer doubles each month.

x	y



Function rule: _____

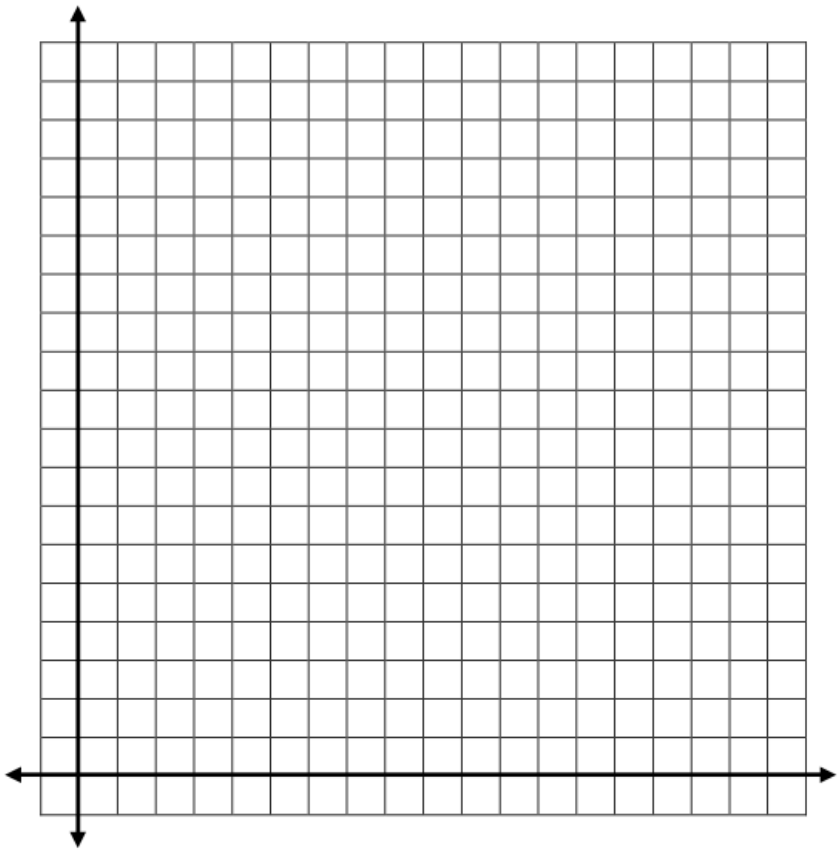
Question 1. How many deer will there be after 10 months?

Question 2. When there are more than 10,000 deer Eagle Creek will have to move the deer to other parks in the state. After how many months will deer have to be moved?

3. Guitar Club Membership

Mrs. Petrin is the sponsor for Guitar Club at Pike. During the first week of school she had 2 people join Guitar Club. The number of people joining Guitar Club doubles each week.

x	y



Function rule: _____

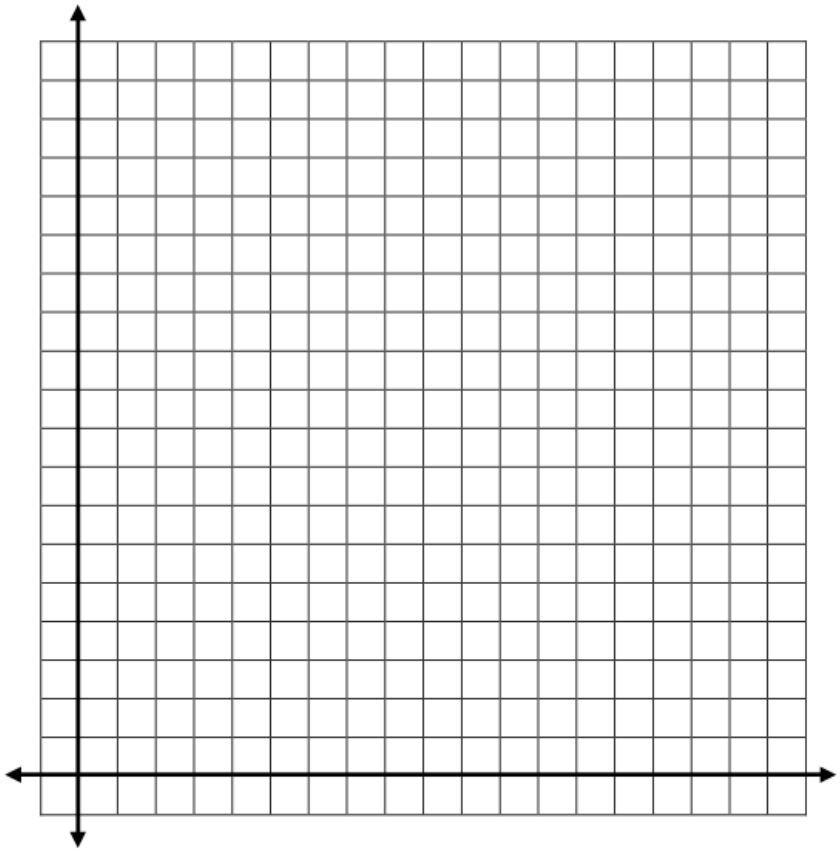
Question 1. How many students are in Guitar Club after 4 weeks?

Question 2. Once Mrs. Petrin has more than 30 students join Guitar Club she has to get a bigger room for Guitar Club. After how many weeks will Mrs. Petrin have to get a bigger room?

4. Sick Day

Ms. Wraley came to Pike sick one day and got 3 students sick. The next day the sick students came to school and got other people sick. The number of students who get sick triples every day.

x	y



Function rule: _____

Question 1. How many students will be sick after 6 days?

Question 2. After half of the students at Pike (1,630 students) are sick, Mr. Inman has to cancel school. After how many days will school have to be cancelled?

Lesson 5 Assessment

Name: _____Period: _____ Date: _____

Topic 15 HW#5 – More Modeling Practice

1. An initial population of 750 endangered turtles triples each year for 5 years. Write a rule for the population and find the population after 5 years.

   Function Rule: _____

   Population after 5 years: _____

2. The population of Baconburg starts off at 20,000, and grows by 13% each year. Write an exponential growth model and find the population after 10 years.

   Function Rule: _____

   Population after 5 years: _____

3. The population of Henderson City was 3,381,000 in 1994, and is growing at an annual rate of 1.8%. what will the approximate population of Henderson City be in the year 2016?

   Function Rule: _____

   Population in 2016 (standard notation): _____

   Population in 2016 (scientific notation): _____

4. Write a function rule for the table. Create a scenario to show your understanding of what the data represents.

x	y
0	1
1	4
2	16
3	64
4	256

   a. Function Rule: _____
   b. Your Scenario:

   _____
   _____
   _____
   _____
   _____
   _____

5. Write a function rule for the table. Create a scenario to show your understanding of what the data represents.

x	y
0	6
1	12
2	24
3	38
4	96

   a. Function Rule: _____

   b. Your Scenario:
   _____
   _____
   _____
   _____
   _____

6. Johnny has 2 more quarters than dimes. He has a total of 38 quarters and dimes worth $6.80. How many quarters and dimes does Johnny have?

   Equation 1: _____ Equation 2: _____

   Number of Quarters: _____ Number of Dimes: _____

7. Adam is buying fish for his aquarium. He wants to buy blue fish and striped fish. The blue fish cost $15 and the striped fish are $18. The aquarium can hold 10 fish, and he spent $171. How many of each type of fish did Adam buy?

   Equation 1: _____ Equation 2: _____

   Number of blue fish: _____ Number of striped fish: _____

Name: _____Period: _____ Date: _____

Topic 15 Exponential Functions & Equations Test Review

	Linear Function	**Exponential Function**
General Form	$f(x) = mx + b$	$f(x) = a \cdot b^x$
	Starting value: _____ *Rate of change:* _____	*Starting value:* _____ *Constant Multiplier:* _____

1) Suppose the population of particular bacteria doubles every 2 hours. Write a function rule for the situation if there are 52 bacteria present in the culture. How many bacteria will there be after 4 hours?

Function rule: _____

Amount present after 4 hrs: _____

2) Determine if the data in the table represents a linear or exponential function. _____
Write a function rule that best fits the data. _____

x	1	2	3	4	5
$f(x)$	3	9	27	81	243

3) Determine if the data in the table represents a linear or exponential function. _____
Write a function rule that best fits the data. _____

x	0	1	2	3	4
$g(x)$	5	15	45	135	405

4) Determine if the data in the table represents a linear function or exponential function. _____
Write a function rule that best fits the data. _____

x	1	2	3	4	5
$f(x)$	-2	-6	-18	-54	-162

5) Determine if the data in the table represents a linear function or exponential function. _____
Write a function rule that best fits the data. _____

x	-3	-2	-1	0	1
$g(x)$	10	15	25	20	15

6) The number of fire ants triples every 5 hours and there are currently 60 fire ants.

a. Function Rule:_____

b. How many fire ants will there be in 24 hours?

7) You went to a Taylor Swift concert and had her sign your ticket. Now the ticket is worth $160 on eBay. If the value of the ticket increases 14% each year, then what will the value be after 6 years?

8) Supposed you deposit $3,000 in an account paying 4.5 % interest each year. Write an exponential function model that can be used to determine the amount in the account after ***t*** years.

Function Model: _____

Now use this model to determine the balance in the account after 10 years.

9) The foundation of your house has 1200 termites. The termites are growing at a rate of 2.4% per day.

a. Write a rule to show how the termites are growing? _____
b. How many days will it take for the termites to double? _____
