Name_____

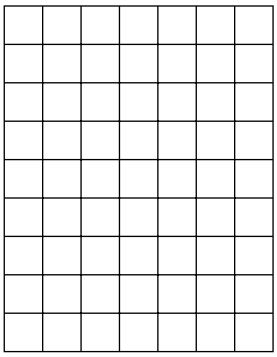
Community Service: Task

Larry, Moe, and Curly spend their free time doing community service projects. They would like to get more people involved. They began by observing the number of people who show up to the town cleanup activities each day. The data from their observations is recorded in the given table for the Great Four Day Cleanup.

x	*y*
1	5
2	27
3	49
4	71

1. Give a verbal description of what the domain and range presented in the table represents.

2. Sketch the data on the grid below.



3. Determine the type of function modeled in the graph above and describe key features of the graph.

4. Based on the pattern in the data collected, what recursive process could Larry, Curly, and Moe write?

5. Write a linear equation to model the function.

6. How would Larry, Curly, and Moe use the explicit formula to predict the number of people who would help if the cleanup campaign went on for 7 days?

ARITHMETIC SEQUENCES	GEOMETRIC SEQUENCES
$d = a_n - a_{n-1}$	$r = \frac{a_n}{a_{n-1}} = \frac{a_2}{a_1} = \frac{a_3}{a_2}$
Explicit: $a_n = a_1 + d(n-1)$	**Explicit**: $a_n = a_1(r)^{n-1}$
Recursive: $a_n = a_{n-1} + d$	**Recursive**: $a_n = (a_{n-1}) \cdot (r)$

Name_____

Baking Pies for Community Service: Task

Excited about the growing number of people participating in community service, Larry, Curly, and Moe decide to have a fundraiser to plant flowers and trees in the parks that were cleaned during the Great Four Day cleanup. It will cost them $5,000 to plant the trees and flowers. They decide to sell some of the delicious pies that Moe bakes with his sisters. For every 100 pies sold, it costs Moe and his sisters $20.00 for supplies and ingredients to bake the pies. Larry, Curly, and Moe decide to sell the pies for $5.00 each.

1. Complete the following table to find the total number of pies sold and the amount of money the trio collects.

On Day 1, each customer buys the same number of pies as his customer number. In other words the first customer buys 1 pie, the second customer buys 2 pies. Fill in the table showing the number of pies and the amount collected on Day 1. Then calculate the total number of pies sold and dollars collected.

Write an explicit formula for the pies sold on Day 1. Explain your thinking.

Customer Number	***Number of Pies Sold***	***Amount Collected***
1	***1***	***$5***
2	***2***	***$10***
total		

On Day 2, the first customer buys 1 pie, the second customer buys 2 pies, the third customer buys 4 pies, and the fourth customer buys 8 pies, and so on**.** Complete table based on the pattern established. Then calculate the total number of pies sold and dollars collected.

Write explicit formula for the pies sold on Day 2. Explain your thinking.

Customer Number	***Number of Pies Sold***	***Amount Collected***
1	***1***	***$5***
2	***2***	***$10***
total		

2. Compare the rates of change on Day 1 and Day 2 for the number of pies sold?

Name_____

3. Did Larry, Curly, and Moe earn enough in two days to fund their project? Consider costs incurred to bake the pies. Justify your reasoning.

Name_____

Linear or Exponential

Write the equation and solve the problems below.

Linear Equation: $y = mx + b$

Exponential Equation: $y = ab^x$

$y = a(1 \pm r)^x$

1) The most recent virus that is making people ill is a fast multiplying one. On the day of the illness, only 2 virus "bugs" are present. Each day after, the amount of "bugs" triples.

2) The metal ball starts at 250ft and falls 5ft per second. What is the height of the ball after 22 seconds?

3) Bill has $200 in his bank account. Each week, Bill receives a $20 dollar bill from his dad. How much money would Bill have after 16 weeks?

4) Your family drives from Orlando to Atlanta, which is 360 miles apart from each other. They are traveling at a speed of 120 miles per 2 hours. How long would it take until your arrive in Atlanta.

5) Tobias ate half a banana in his room and forgot to throw the rest away. That night, two gnats came to visit the banana. Each night after, there was four times as many gnats hanging around the banana. How many gnats will be in the room after 4 nights?

6) A house that cost $200,000 will appreciate in value by 3% each year. Find the value of the house at the end of ten years.