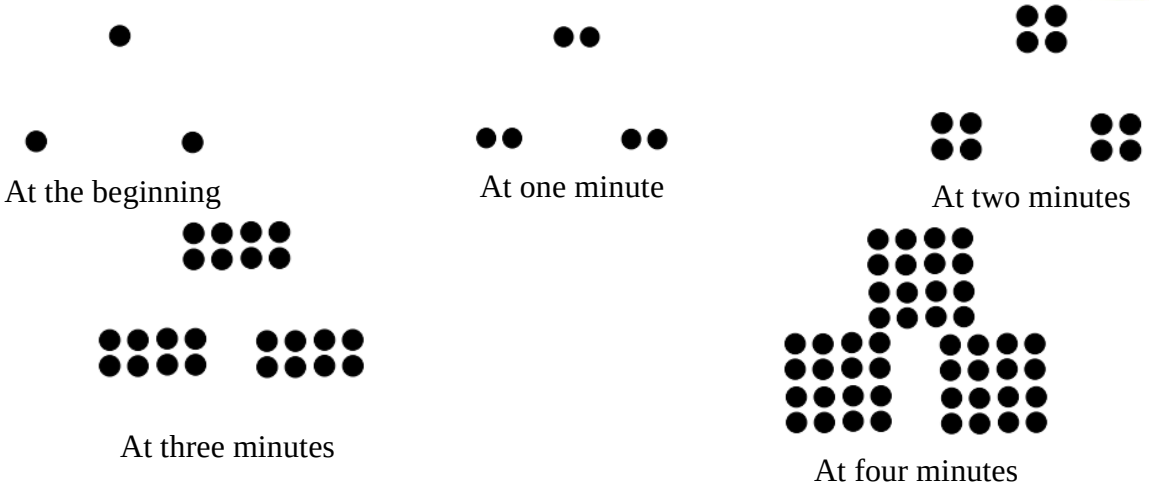
Math 2 Name: _____
M0D3 Date: _____ Period: ____

Growing, Growing Dots

Exercise #1: Mark the diagram below to show how you see the growth occurring between figures.



At the beginning

At one minute

At two minutes

At three minutes

At four minutes

1. Describe and label the pattern of change you see in the above sequence of figures.

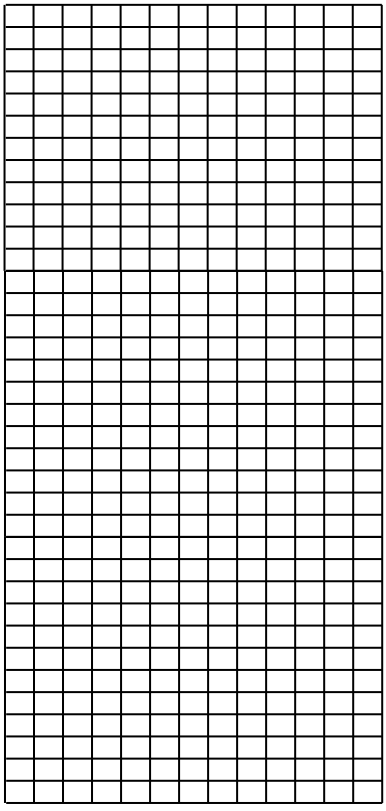
2. Assuming the sequence continues in the same way, how many dots are there at 5 minutes?

3. Write a *recursive formula* to describe how many dots there will be after t minutes. That is, write a simple formula that describes what you do to the previous number of dots to get the next set of dots. (This formula is different than writing the actual rule/formula in your answer for #4).

4. Write a rule (an *explicit formula*) to describe how many dots there will be after *t* minutes

Complete the table, then graph the data on the grid on the right.

# of minutes	# of dots



Exercise #2: Determine the next two terms in the sequence. Then, write a recursive and explicit function to describe each sequence.

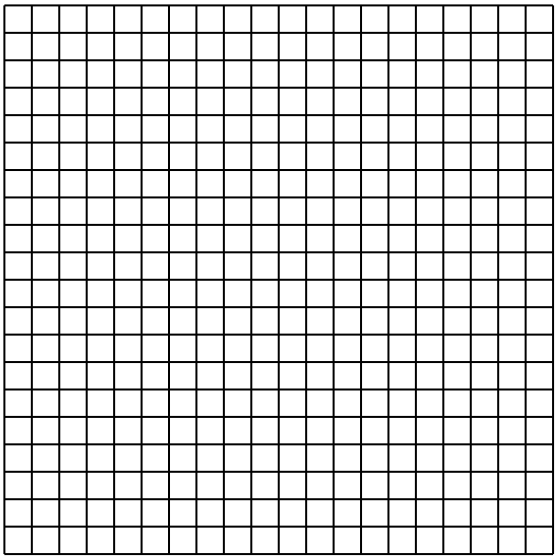
a) 4, 12, 36, 108, _____, _____ b) 5, -10, 20, -40, _____, _____ c) 243, 162, 108, 72, _____, ____

Recursive Function: Recursive Function: Recursive Function:

Explicit Function: Explicit Function: Explicit Function:

Exercise #3: Graph each function. Be sure to justify your reasoning completely.

a) $f(x) = 3(2)^{x-1}$



b) $g(x) = 3000\left(\frac{1}{2}\right)^{x}$