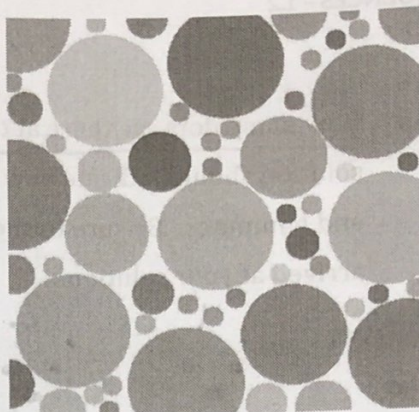
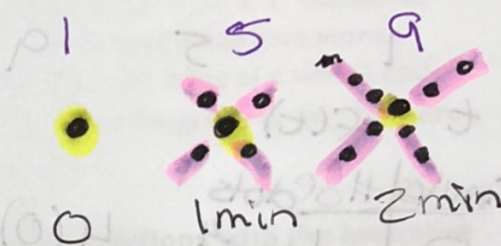
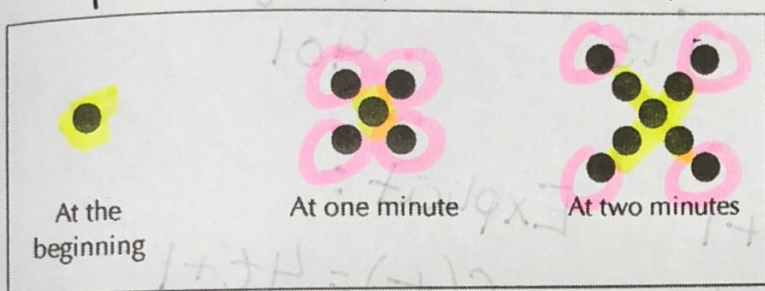
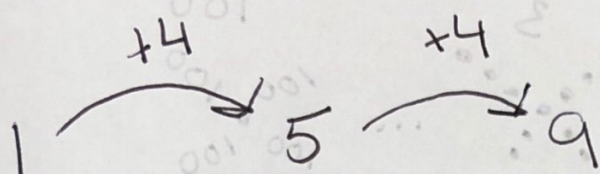


1.2 Growing Dots

A Develop Understanding Task

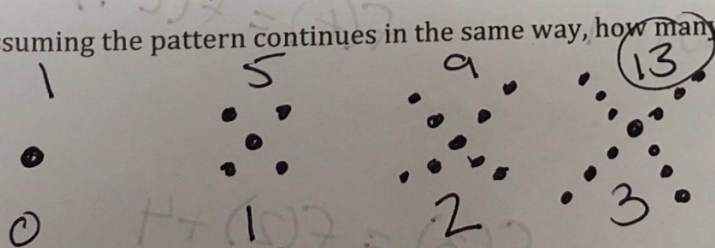


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<https://flic.kr/p/d9X1ZT>



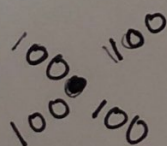
- Describe the pattern that you see in the sequence of figures above.
 - (Recursive) - Every minute 1 dot was added to each leg
 - (Explicit) - 4 arms/legs of length t

2. Assuming the pattern continues in the same way, how many dots are there at 3 minutes?



Recursive - w/ small #s

3. How many dots are there at 100 minutes?

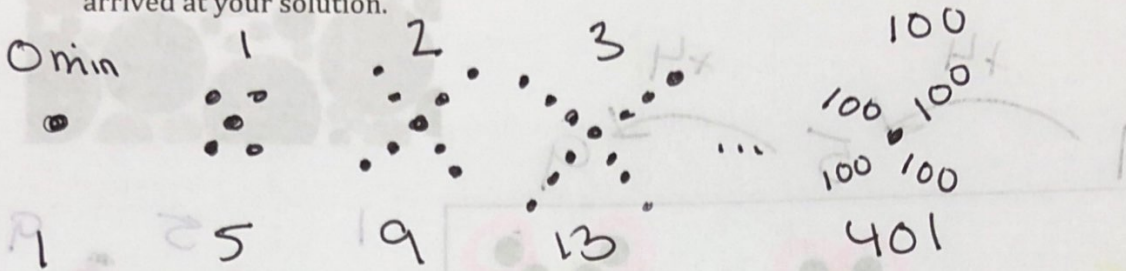


$$401$$

$$4(100) + 1$$

Explicit - w/ big #'s

4. How many dots are there at t minutes? Solve the problems by your preferred method. Your solution should indicate how many dots will be in the pattern at 3 minutes, 100 minutes, and t minutes. Be sure to show how your solution relates to the picture and how you arrived at your solution.



t	$f(t)$
minutes	# of dots
0	1
1	5
2	9
3	13
...	...
100	401
...	...
t	$4t + 1$

$$4(0) + 1$$

$$4(1) + 1$$

$$4(2) + 1$$

$$4(3) + 1$$

$$4(100) + 1$$

Explicit:

$$f(t) = 4t + 1$$

Recursive:

$$f(0) = 1$$

$$f(t) = f(t-1) + 4$$

$$f(3) = f(2) + 4$$

\uparrow \uparrow
 t $t-1$