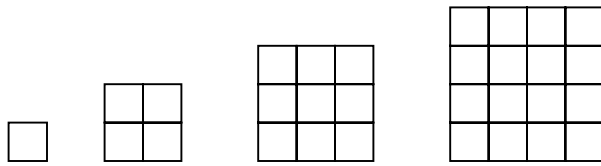


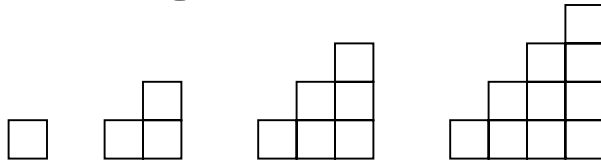
Finding Patterns and Graphing Functions

The first 4 figures of 2 different patterns are given below.

SQUARE:



STAIRCASE:



For each pattern, draw the 5th and 6th figures. Determine the perimeter and area for each, and then complete the tables for figure numbers 1 through 6. Look for patterns.

SQUARE

Figure #	1	2	3	4	5	6	n
Area							
Perimeter							

STAIRCASE

Figure #	1	2	3	4	5	6	n
Area							
Perimeter							

Next determine the expression for the area and perimeter for the nth term of each figure. Check your expression by using values for n that you already know. (If it is correct it must work for every figure #!)

Finally, make one graph for each figure. (Your first graph should show the area and perimeter values for the squares. The second graph should show the staircase values.) Let the x be the figure number, and y be the corresponding area or perimeter value. Clearly label or color-code your graphs. Use your nth term expression to write an equation for each line or curve on the graphs.

Analyze: What makes a pattern linear or non-linear? How do the patterns going across in your table relate to your nth term expression?