

# Finding Patterns and Graphing Functions

## Graphing calculator instructions

First, choose  $2^{\text{nd}}$  > MEM > 4:ClrAllLists > ENTER > ENTER to clear all lists. Go to the Y= window and clear any equations. Use  $2^{\text{nd}}$  > STAT PLOT to turn all stat plots off. Now go to STAT > 1:EDIT > ENTER to get to your lists. We will let list L1 be the figure number, L2 be the square perimeter, and L3 be the square area. L4 and L5 will be the staircase perimeters and areas, respectively. First, enter values 1 through 6 in the L1 column. You can enter the values manually in columns L2 through L5 or use formulas. To enter a formula for any column, put the cursor over the list name. (It should be highlighted black.) Then use quotation marks (ALPHA > " ) to start and end the formula. In this case, list L2 would have the formula "4\*L1". (Note: Do not type in L1! To put a list name in a formula either find the list name on the calculator and use the  $2^{\text{nd}}$  key, or choose  $2^{\text{nd}}$  > LIST and choose it from the list.) When you press ENTER it will fill the column with the appropriate values.

Once you have all the values in the list you are ready to view the plots and graphs. Choose  $2^{\text{nd}}$  > STAT PLOT > ENTER. Turn the stat plot on, choose the scatter plot, and choose the lists that you want to use for your plot. For example, to view the perimeter plot for the square make Xlist: L1 and Ylist: L2. When you are done setting up the plot, choose GRAPH. Your points should appear. To have the calculator determine the function for your perimeter points we will do linear regression. Choose STAT > CALC > 4:LinReg(ax+b) > ENTER. The cursor will be flashing for you to enter the lists that you want to use for your input. (Lists L1 and L2 are default. So if you don't enter any lists before you hit enter again it will choose those.) Choose L1, L2. You now have the regression equation. To graph the regression line, choose Y= > VARS > 5:Statistics > EQ > 1:REGEQ > ENTER. It puts enters regression equation for you. Choose GRAPH to view the graph.

For the non-linear area plots, replace the underlined 4:LinReg(ax+b) above with 5:QuadReg.

