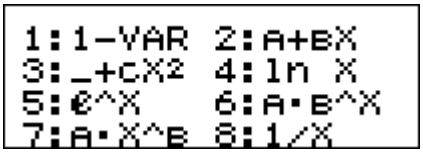
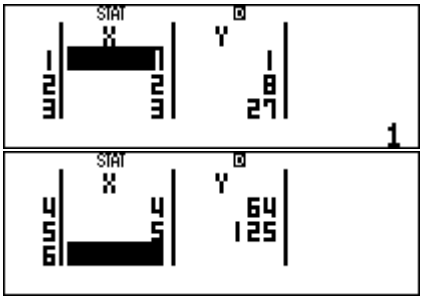
Module 5 : Examples of functions from geometry

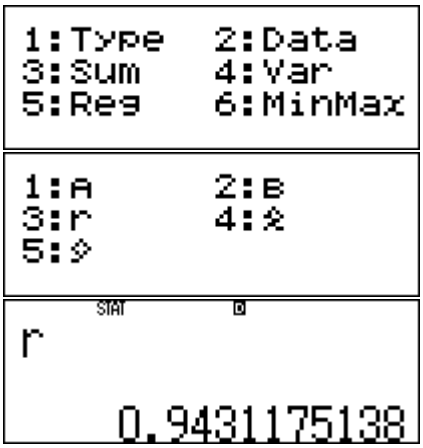
Part A – Verifying non-linear relationships

In order to verify if a set of data between 2 or more points, use the STAT mode. MODE 2 (STAT)	
Once in this menu select linear form for an equation 2: A + BX. 2 (2: A+BX)	
Enter the points that you are checking. Enter the X coordinates in the X list and the Y coordinates in the Y list. Use the = to enter the value and the arrow keys to navigate between lists. This data set is a power of 3. X: 1, 2, 3, 4, 5 Y: 1, 8, 27, 64, 125	

Press the [AC] key to clear the screen and select the r-value (correlation coefficient). The r value is in the STAT menu above the number 1.

[SHIFT] [1] to get to the menu for the r-value. Finally press 3: r for the r-value.

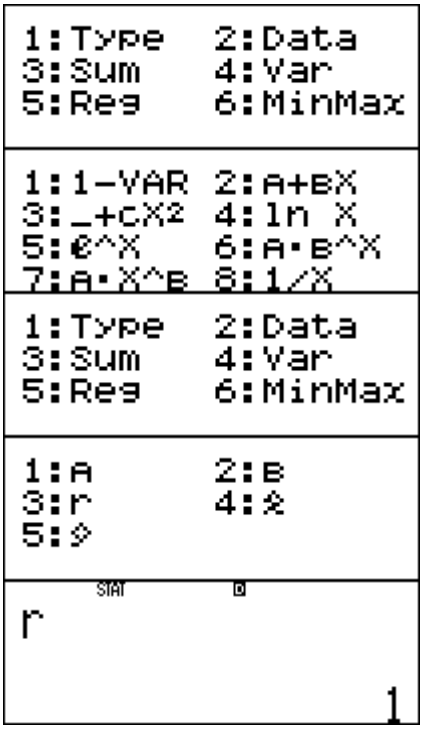
[3] [=]



For a linear relationship the r value should be close to -1 or 1 with a value of -1 or 1 meaning a perfect fit. In above example to r-value is about 0.94, but the data suggests a power of 3. Test the r-value for a cubic relationship.

[SHIFT] [1] (STAT)
[1] (1: Type) [7] (A*X^B)
[AC] [SHIFT] [1] (STAT) [5] (5: Reg)
[3] (3: r) [=]
The r-value is 1, a perfect fit.

Note: Always graph your data set before looking at the r value.



To verify that it is a cubic (3rd power function), press SHIFT 1 (STAT) 5 (5: Reg) 2 (2: B) =