## Correlation coefficient and equation of line of best fit using Casio fx-83ES , Natural Display

Input the folowing data on fat grams and total calories in fast food

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Total Fat (g) | Total Calories |
| 1 | Hamburger | 9 | 260 |
| 2 | Cheeseburger | 13 | 320 |
| 3 | Quarter Pounder | 21 | 420 |
| 4 | Quarter Pounder with Cheese | 30 | 530 |
| 5 | Big Mac | 31 | 560 |
| 6 | Sandwich Special | 31 | 550 |
| 7 | Sandwich Special with Bacon | 34 | 590 |
| 8 | Crispy Chicken | 25 | 500 |
| 9 | Fish Fillet | 28 | 560 |
| 10 | Grilled Chicken | 20 | 440 |
| 11 | Grilled Chicken Light | 5 | 300 |

1. Number each row of data if this is not already done to make less likely to miss a row as data is input.
2. MODE, 2(STAT ), 2(A+BX)
3. Input the data into columns x and y.( Press = after inputting each data item)
4. When they are all entered press SHIFT and 1(STAT)
5. Choose 7( Reg i.e. regression)
6. Choose 3 (r i.e. correlation coefficient), press =

Gives correlation coeff of 0 .9746

**To find the equation of the line of best fit (calculation of this is not now on the syllabus but it is so easy to do on a calculator it would be a pity not to show it here.)**

We are looking for the values of **A (intercept on the y-axis)** and **B (slope of the line)** from step 2 above.

1. The correlation coefficient which has been calculated in Step 6 above will have gone into row 12, column Y so it must be deleted as it is not one of the original data items. Move the up arrow to row 12, column Y and press the DEL button.
2. Press SHIFT , 1(STAT),7(REG),1(A) followed by = which gives A=193.85. (This appears in row 12, column Y)
3. The intercept A which has been calculated will have gone into row 12 so it must be deleted as it is not one of the original data items. Move the up arrow to row 12, column Y and press the DEL button.
4. Press SHIFT , 1,7,2 followed by = which gives B = 11.731. This appears in row 12 column Y.

The equation of the line of best fit is: y = 193.85+11.731x