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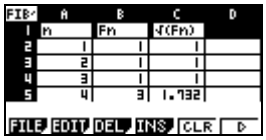
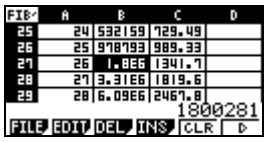
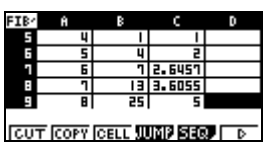
Spreadsheets

This edition of fxNews contains five example spreadsheets in file **SS06V4.g1m**.

Below is a description of each of the included spreadsheets.

Name	Description
FIB~2	This spreadsheet illustrates one way to investigate how many terms of the recursive sequence $F_n = F_{n-1} + F_{n-2} + F_{n-3}$ (where $F_1 = 1$, $F_2 = 1$ and $F_3 = 1$) are square numbers. The sequence (1, 1, 1, 3, 5, 9, 17, …) is very similar to the standard Fibonacci sequence.   The first 30 terms of the sequence are displayed in column B. The square root of Fn is displayed in column C. Care should be taken when interpreting what is shown on the calculator screen. Cell C31 looks like an integer (4539), but the bottom right hand corner of the screen shows otherwise.    Similarly, the 26th term of this sequence is too large to display in cell B27. It can only be seen by making sure that in the Spreadsheet Setup (Shift + MENU) the Show Cell option is set to Value rather than Formula. This investigation could be extended to include the ratio of consecutive terms of the sequence.
FIB~4	This is a variation of the above spreadsheet, using the recursive formula sequence $F_n = F_{n-1} + F_{n-2} + F_{n-3} + F_{n-4}$ where $F_1 = 1$, $F_2 = 1$, $F_3 = 1$ and $F_4 = 1$. 

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LUCAS

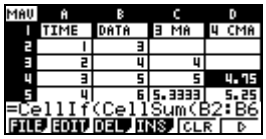
This spreadsheet explores the ratio of consecutive terms of the Lucas sequence $L_n = L_{n-1} + L_{n-2}$ where $L_1 = 1$ and $L_2 = 3$.

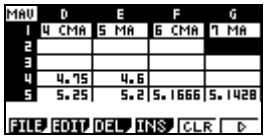
Students may recognize this as the Golden Ratio, and discover that in the long run this ratio is independent of the two starting terms.

Note that many relationships exist between the Fibonacci and Lucas sequences, such as $L_n = F_{n+2} + F_{n-2}$.

MAV34567

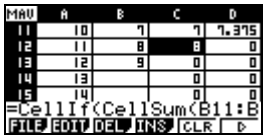
This spreadsheet automatically calculates 3, 4, 5, 6 and 7 point moving averages for up to 20 data points entered into column B.



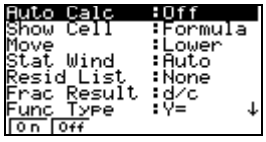


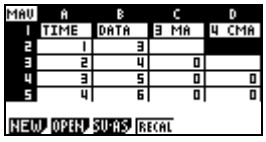
All even moving averages are centered.

The sheet makes use of the CellIf command to enter a value of 0 in cells where insufficient data exists to calculate a moving average.



This spreadsheet is quite slow to run. After each data point has been entered, the spreadsheet takes about 3 or 4 seconds to update. You may choose to turn the Auto Calc option Off and then use the FILE, RECAL to manually re-calculate all cells in the sheet.





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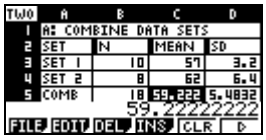
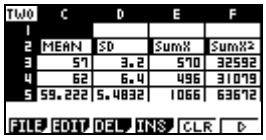
TWO~DATA This spreadsheet is designed to help the user calculate either

- The combined mean and sd of two data sets; or
- The mean and sd of a data set split from a larger data set.

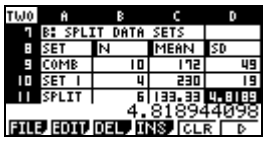
Combined example:
After sitting a common test, the 10 students from Class A had a mean of 57% and a sd of 3.2%. If the 8 students from class B had a mean of 62% and a sd of 6.4%, what was the combined mean and sd for all 18 students?

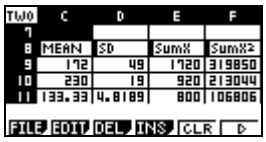




Open the spreadsheet and enter known values in cells B3 to D4. The statistics for the combined set are automatically displayed in cells B5 to D5. Summary statistics are shown in cells E3 to F5.

Split example:
Some apples and oranges had a combined mean weight of 172g with a sd of 49g. If the mean weight of the 4 oranges was 230g with a sd of 19g, what was the mean and sd of the 6 apples?





Open the spreadsheet, scroll down and enter known values in cells B9 to D10. The statistics for the split set are automatically displayed in cells B11 to D11. Summary statistics are shown in cells E9 to F11.