Casio 9860 Self-guided Instructions - Spreadsheet Mode

Instructions	Screenshots

Getting Started … naming a new sheet:

Go to **Menu 4 (S-SHT)** and press **EXE.** Note: You will either have a blank sheet or a sheet with some numbers.

Let's assume we want to make a new sheet. We will call this S1 for Sheet One.
Press File (F1) then **NEW (F1)**
In Spread Sheet Name:
Press S (X key) then ALPHA 1. Then EXE. (Fig1)

NOTE: when typing Spread Sheet Name the ALPHA button does not need to be pressed to type a letter. ALPHA is already 'ON'.
NOTE: There is a 'Save As' function. If you forget to name your first spreadsheet, you can use 'Save As'. It is under File (F1), then F3.

Before we enter values please do this:

Place your cursor in Cell A1. Press left arrow (FigA)
Note this hi-lights the Row1.
Now **return the cursor to A1 (right arrow) and press up arrow.** This hi-lights Column A.

Entering values:

Now make the spreadsheet in Fig2. Do this by scrolling to cell A1 and pressing **1 EXE then 2 EXE** etc. Enter the numbers into all six cells.

Overwriting:

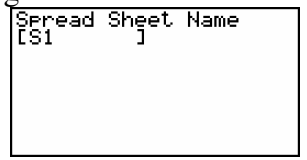
Now, in Column A move the cursor back to A1 and **press 3 EXE** etc. to over-write 1, 2, 3 with **3 6 9** (Fig 3)

Now, in Column B over-write 2, 4, 6 with **4 8 12** (Fig 4)

Deleting Values:

Let's delete just the 8 for now. Place the cursor over the 8 and **press CLR (F5)** (Fig 5)

Fig1



FigA

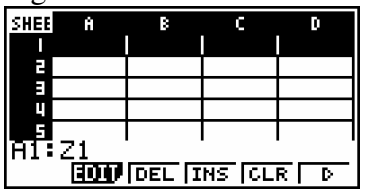


Fig2

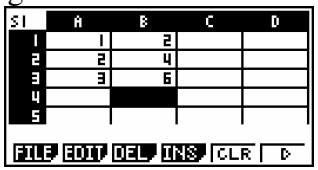


Fig3

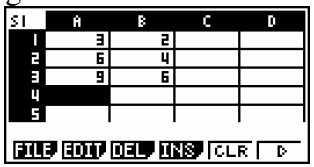


Fig4

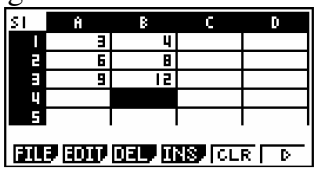
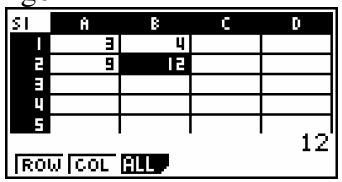


Fig5

Deleting a row:

Let's delete Row 2. leave the **cursor anywhere in Row 2** and press **DEL (F3) then ROW (F1)** (Fig 6)
NOTE: When you delete a row, the rows below 'jump up' one place.

Fig6

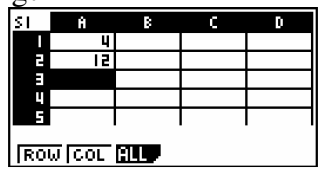


Deleting a column:

Let's delete Column A. Note that we are still in delete mode the delete options ROW, COL and ALL still displayed at F1, F2 and F3. Place the **cursor anywhere in Column A and press COL (F2)** (Fig 7)

Note: When you delete a row, the rows to the right 'jump left' one place.

Fig7



Deleting all values:

Press ALL (F3) then YES (F1).

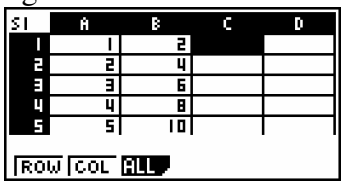
Saving Your Work:

It is important to note that the sheets 'save-as-you-go'. This has its advantages and disadvantages. It means you don't need to do anything to save a sheet. But it also means that if you accidentally delete part of an already produced sheet, you cannot return to the original.

The Sum Formula:

Enter 1 2 3 4 5 and 2 4 6 8 10 into columns A and B respectively as shown. (Fig 8)

Fig8



We will put the sum of 1 and 2 into C1, the sum of 2 and 4 into C2, and so on. In other words Column 3 will be the sum of Column 1 and Column 2.

Just as in excel the = sign turns a command into a formula that will work for all prescribed situations.
You should still be in the delete screen. **Press EXIT** to return to the 'initial' screen.
Press **EDIT (F2) then (F6) then FILL (F1).**

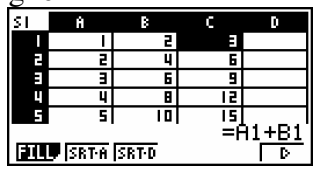
In the Formula line type =A1+B1 **(SHIFT then ALPHA A 1 + ALPHA B 1 EXE)**

Fig9

In Cell Range type C1:C5 (ALPHA C 1 (F1) ALPHA C 5) (Fig 9)
Then **EXE EXE**

Your spreadsheet should look like Fig10

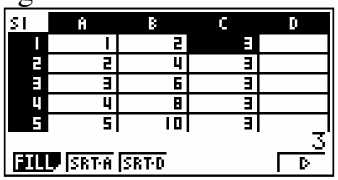
Fig10



A common mistake:

Look at Column 3 in Fig11. This is the result of trying to make the last spreadsheet BUT making a common mistake in the formula line. Can you discover/guess what the mistake is?

Fig11

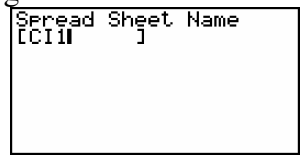


The mistake is to NOT include the equal sign when entering the formula.
In other words, **Formula : A1+B1** is mistakenly written instead of **Formula : =A1+B1**
Therefore, the calculator will put the sum of A1 and A2 into each designated cell of Column C!!

Calculating Compound Interest:

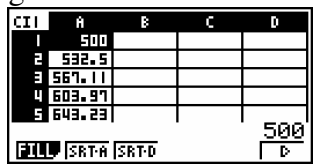
Let's name a new spreadsheet.
Press EXIT FILE NEW and name the new sheet **CI1 (Press C I ALPHA 1 Then EXE)** (Fig 12)

Fig12



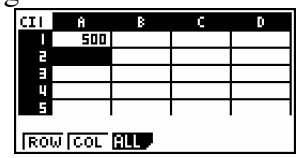
Consider the situation of investing $500 at 6.5% pa compounding annually.
Fig 13 shows what the finished spreadsheet will look like:

Fig13



Enter 500 into cell A1 (Fig 14)

Fig14

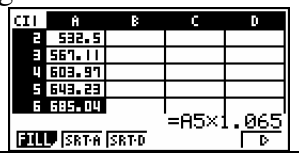


Now we use a formula and fill down into cells A2 to A10.
Press EXIT EDIT F6 FILL
In the formula row type **= A1x1.065**
In the Cell Range use scroll and the delete button to enter **A2:A10** (Fig 15)

Fig15

Then **EXE EXE.** Scroll through the cells in column A and note that the formula displays in the bottom right of the screen. (Fig 16)

Fig16



Generating the Fibonacci Sequence:

Open a new spreadsheet and name it **FIB1** (**Press EXIT** if necessary, **then FILE NEW FIB1 EXE)**
Enter 1 in A1 and 1 in A2 (Fig 17)

Can you generate the Fibonacci Sequence?

Without looking at the next instructions see if you can generate the Fibonacci Sequence utilizing the skills you have just used.

How to do it:

To generate the Fibonacci sequence we need the calculator to add cells A1 and A2 and place the result in A3 and to do that for each successive pair.
Press **EDIT F6 FILL**
Enter **=A1+A2** into the Formula line.
Enter **A3:A20** in the Cell Range line. (Fig 18)

Then **EXE EXE** Here we have the first 20 terms of the Fibonacci sequence! (Fig 19)

Further Fibonacci Investigation:

When we divide a Fibonacci number by the previous Fibonacci number the quotient apparently approaches the golden ratio with successive divisions.
See if you can show this phenomenon on the calculator. Make the first quotient appear in Cell B2.

How to do it:

Go to Fill by pressing **EDIT (F2)** ▷ **(F6) FILL (F1)**
In the Formula line **enter =A2÷A1 EXE** (Fig19B)
In the Cell Range line **enter B2:B20 EXE** (Fig19C), using **F1 for the colon.**

Fig17

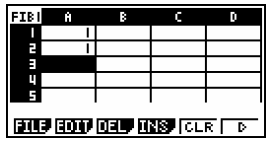


Fig18

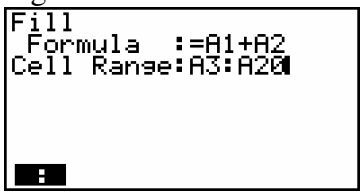
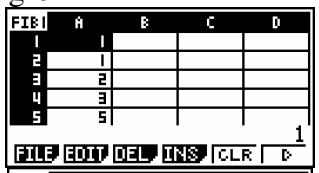


Fig19



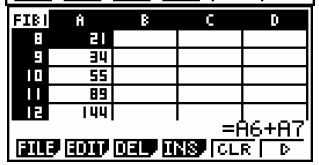
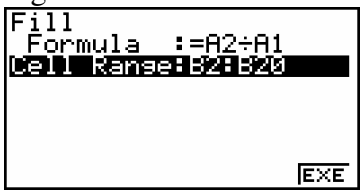


Fig19B

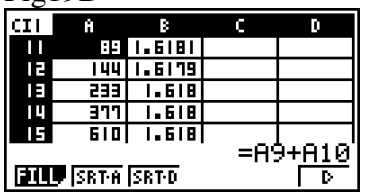
Fig19C



Press EXE (Fig19D)

We can see that the Golden Ratio does appear to be approached with successive divisions in this way. For closer inspection we could repeat this exercise using a computer spreadsheet.

Fig19D



A Retainer-Plus-Commission Investigation:

Can you do it?

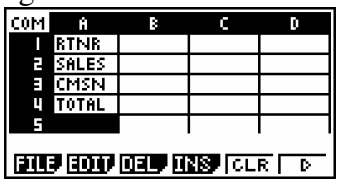
Consider the following challenge: Find three different combinations of

- Retainer Amount
- Sales Made and
- Percentage Rate of Commission

which earn a salesperson $2850 in a week.

Your task is to build a spreadsheet which will assist you in this investigation.

Fig 20



Building the Retainer-plus-Commission Calculator:

Create a new spreadsheet and name it suitably… **Press File (F1)** then **NEW (F1).**

Now we will enter the labels as shown in Fig20.

NOTE: When entering text into a cell speech quotations (ALPHA EXP) need to be entered first!

Writing RTNR in Cell A1:

Place the **cursor in Cell A1. Press ALPHA EXP ALPHA R APLPHA T ALPHA N ALPHA R EXE**

Writing SALES in Cell A2

Place the **cursor in Cell A2. Press ALPHA EXP ALPHA S APLPHA A ALPHA L ALPHA E ALPHA S EXE**

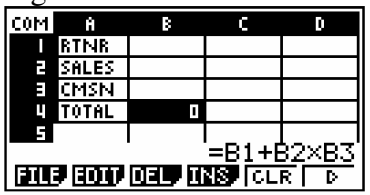
NOTE: A faster way to write is to use the ALPHA-LOCK function (SHIFT ALPHA)

Writing CMSN in Cell A3

Place the **cursor in Cell A3. Press ALPHA EXP SHIFT ALPHA C APLPHA M ALPHA S ALPHA N EXE**

Now write TOTAL in Cell A4

Fig 21



Calculating the TOTAL in Cell B4:

Place the cursor in B4.

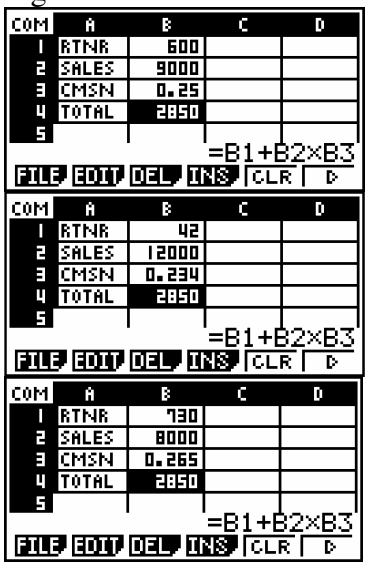
Type SHIFT = ALPHA B 1 + ALPHA B 2 x ALPHA B 3 (Fig 21)

Then **EXE**
The Retainer-plus-Commission Calculator is complete.

Now use it to complete the investigation which was:
Find three different combinations of Retainer Amount, Sales Made and Percentage Rate of Commission which earn a salesperson $2850 in a week.

Three possible solutions are shown in Fig22:

Fig 22



Building a Wage Calculator:

Can you do it?

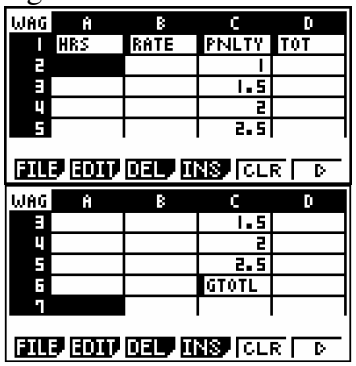
Consider the situation where an employee works a combination of normal time, time-and-a-half, double-time and double-time-and-a-half.
Your task is to design a spreadsheet whereby both the number of hours and the hourly rate can vary.
Design the Wage Calculator in your own way.
Then follow the instructions below to build the version described by these instructions.

One example of the Wage Calculator:

Create a new spreadsheet and name it suitably **(FILE NEW)**

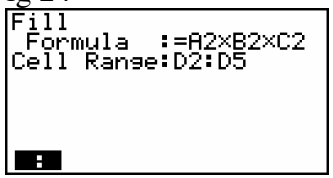
Move the cursor to Cell A1 and type HRS by **pressing ALPHA EXP SHIFT ALPHA H R S EXE** (Fig 23)

Fig 23



Now enter the remaining labels in Fig23 (Hourly Rate, Penalty Levels, Totals and Grand Total) as shown in B1, C1, D1 and C6
Enter the penalty values 1 1.5 2 2.5 into cells C2 to C5 (Fig23)
To create the active Totals cells D2, D3, D4 and D5:
Press **EDIT, F6, FILL.**
Then **enter the values as shown in Fig24.**

Fig 24



Press **EXE, EXE.**

Now we need to enter the formula for the Grand Total into cell D6.
Place the cursor in cell D6.
Press SHIFT = CEL (F5) Sum (F5) ALPHA D 2 (Fig 25)

Now we need the colon. **Press EXIT, F3 ALPHA D 5)** (Fig 26)
Then **EXE.**

Now let's test the Wage Calculator:

Find the gross amount for a worker on $14.97 per hour who works 14 normal hours, 3 hours at x1.5, 1 hour at x2 and 2 hours at x2.5
Enter the values as shown in Fig27 The final total is $381.73

Let's recalculate this for $12.81 per hour **BUT without writing 12.81 five times!**
Enter 12.81 into cell B2.
Press **EDIT, F6, FILL** and enter the values shown in Fig28

Press **EXE EXE.** Note that 12.81 has been filled into all required cells (Fig29)

Try different values in your Wages Calculator.

Simple Interest vs Compound Interest Investigation:

Can you do it?

The task here is to make a spreadsheet that will give a simultaneous read-out of two Future Values; one for a Simple Interest scenario and the second for a Compound Interest scenario. You need to allocate 3 cells in which to enter the 3 variables PRINCIPAL, INTEREST RATE (as a decimal; pa) and TIME (in years). See if you can make such a spreadsheet.
(See Fig30 for layout)

Fig 25

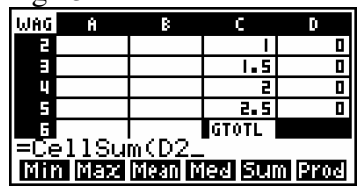


Fig 26

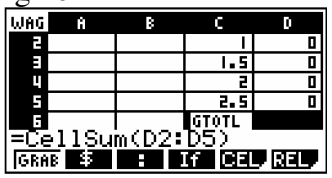


Fig 27

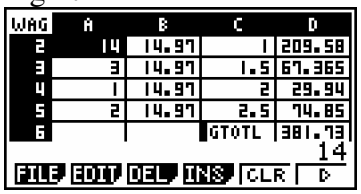


Fig 28

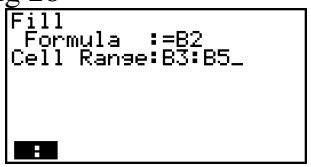
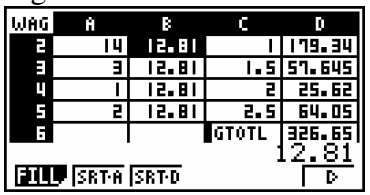


Fig 29



Building an SI/CI Spreadsheet:

Here is one example of a SI/CI spreadsheet.
Enter the headings as shown in Fig30

Calculating the Simple Interest Future Value in Cell D1:

Place the cursor into cell D1
Enter **=B1+B1xB2xB3 EXE** (Fig 32)

Calculating the Compount Interest Future Value in Cell D2:

Place the cursor into cell D2
Enter **=B1(1+B2)^B3 EXE** (Fig33)

Compare the Future Values with P=1000, I=0.12, T=5 (Fig34)

Compare the Future Values with P=1000, I=0.12, T=50 (Fig35)

Fig 30

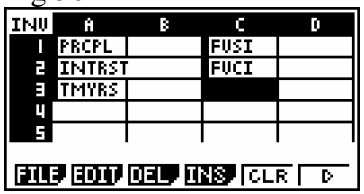


Fig 31

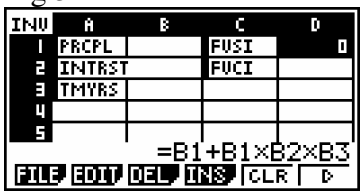
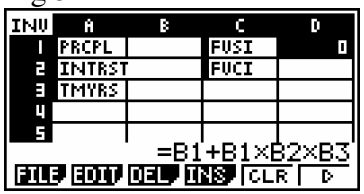


Fig 32



(Fig33)

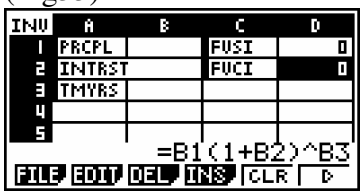


Fig34

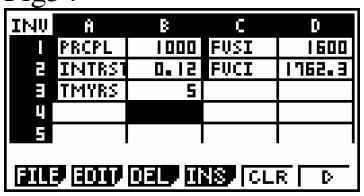


Fig35

A quality activity for students could include the investigation:

"Using the results from your spreadsheet investigate which variable (P, I or T) has the greatest effect in creating the greatest difference between FVSI and FVCI. Justify your findings mathematically".

Inserting Rows and Columns:

Commonly when working with spreadsheets we need to insert extra rows and/or columns.
Set up a new spreadsheet and **enter the values shown in Fig36.**

Inserting a row above Row 1:

Place the cursor somewhere in Row 1.
Press **INS (F4)** then **ROW (F1)** (Fig37)

Now follow the same procedure and insert a row between rows 2 and 3.

Now we will insert a column before Column A and another between Columns A and B.
Place the cursor in Column A, press COL (F2)
Place the cursor in Column C, press COL (F2)
Your spreadsheet should look like Fig38.

Opening Created Spreadsheets:

By now you should have created a number of spreadsheets. To go back and open a saved spreadsheet …
From the screen in Fig38 **press EXIT** then **press FILE (F1)** then **OPEN (F2)**
I will open the FIBI sheet. (You choose any of your saved sheets).
With the **cursor over FIBI** (Fig39) and **pressing EXE** the Fibonacci spreadsheet opens.

Deleting Spreadsheets:

Any spreadsheet that has been saved can be deleted from the list of spreadsheets.
Press FILE (F1) then **OPEN (F2). Place the cursor on the file to be deleted** and press **DEL (F1)**

Fig36

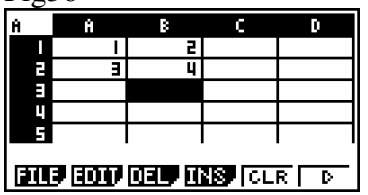


Fig37

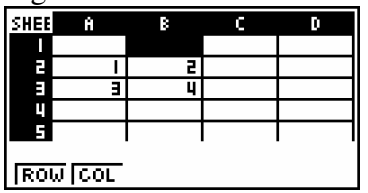


Fig38

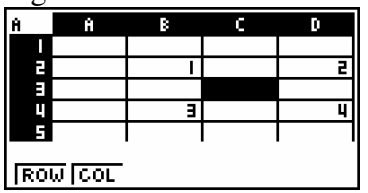
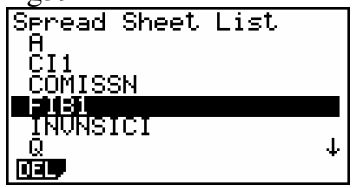


Fig39



The GRAB function:

You may be aware that when using excel there are two ways to enter cell names into a formula: 1) Writing the name eg C1, D3, etc, and 2) clicking on the required cell.
With the Casio 9860 there are also two ways. We have already used the 'writing the cell name' method.
Now we will look at the 'GRAB' method.
Create the spreadsheet in Fig40 by **entering the numbers 1 to 5** as shown and **TOTAL entered into B1.**

We will calculate the total in C1.
Place the cursor in C1.
Start entering the formula by pressing **SHIFT = CELL (F5) SUM (F5)** (Fig41)

Now to use the GRAB function:

Press EXIT GRAB (F1) place the cursor on cell A1 EXE : (F3) GRAB (F1) place the cursor in cell A5 EXE close bracket) EXE (Fig42)
Although the advantage of using the GRAB function is only minor most would agree its use is warranted.

Calculating a Mean:

Create a new spreadsheet by entering the 5 values in Column A as shown in Fig43.
We will calculate the mean in Cell C1.

Let's use the GRAB function to help create the formula.
Place the cursor in Cell C1.
Press SHIFT = CELL (F5) MEAN (F3) EXIT GRAB (F1) scroll to A1 EXE : (F3) GRAB (F1) scroll to A5 EXE close bracket) EXE (Fig44)

Let's check this by calculating the MEAN the long way.
Into Cell B3 type MEAN2
Place the cursor in Cell C3 and enter the formula shown in Fig45 (Fig45)

Fig40

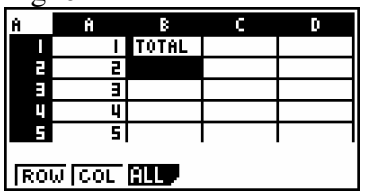


Fig41

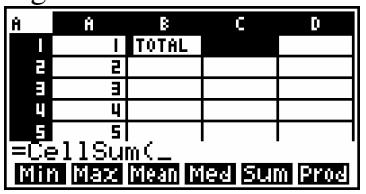


Fig42

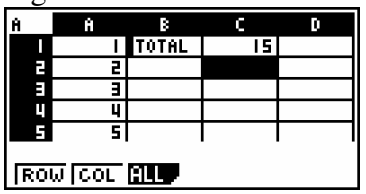


Fig43

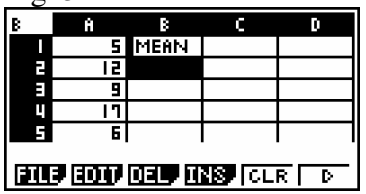


Fig44

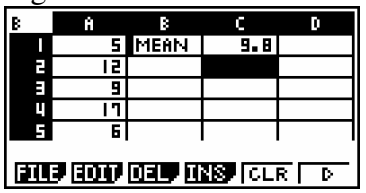
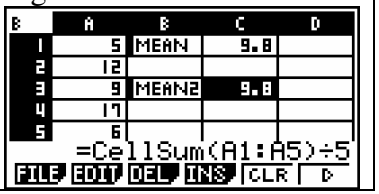


Fig45



Editing a Formula: (eg Calculating the Median starting with a Mean formula):

Using the same spreadsheet let's change the first Mean to a Median.

Change the label in cell B1 to MEDIAN.

Place the cursor into Cell C1 (If the Mean formula does not display, **press EDIT (F2) CELL (F3))**

Rather than enter a whole new formula let's just edit the one we have.

Arrow right two places, press DEL (next to AC/ON) CEL (F5) Med (F4) EXE (Fig46)

Calculations Using Pythagoras' Theorem:

Can you do it?

The task is to build a spreadsheet which will calculate the hypotenuse given the two short sides of a right angled triangle AND the unknown short side given the hypotenuse and the first short side. See if you can make such a spreadsheet.

Creating a Pythagorean Calculator:

One example of this spreadsheet:

Type in the labels as shown in Fig47:

The lengths of Short Sides 1 and 2 will be entered into Cells A2 and B2 respectively and the solution for the Hypotenuse will be entered in Cell C2.

The bottom section is a rearrangement of the top section with the length of Short Side 2 being calculated in Cell C5.

Calculating the Hypotenuse in Cell C2:

Place the cursor in Cell C2

Press **SHIFT = SHIFT $\sqrt{}$ (ALPHA A2 x^2 + ALPHA B2 x^2)** (Fig48)

Press **EXE.**

Calculating the Unknown Short Side in Cell C5:

Place the cursor in Cell C5.

Press SHIFT = SHIFT $\sqrt{}$ (ALPHA B2 x^2 − ALPHA A2 x^2) (Fig49)

Fig46

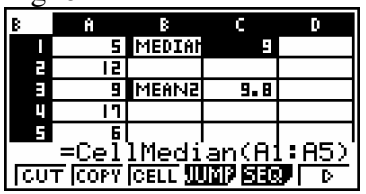


Fig47

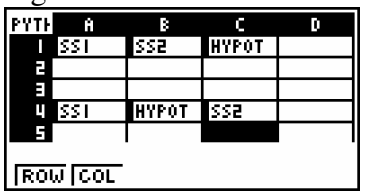


Fig48

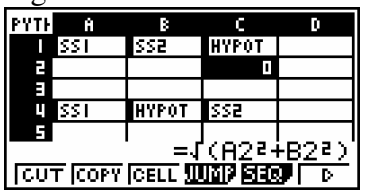
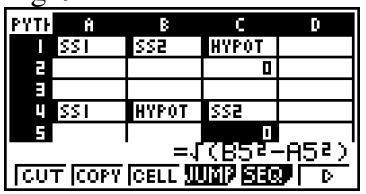


Fig49



Testing the Spreadsheet:

Test that your Pythagorean Calculator works using a 3-4-5 triangle as shown in Fig50.

Calculate the Hypotenuse of a right angled triangle with short sides of length 2.1m and 4.3m (Fig51)
Calculate the unknown side of a right angled triangle if the Hypotenuse is 21.7cm and one short side is 15.3cm. (Fig51)

NOTE:
See what happens if you enter into the bottom calculator a Hypotenuse length that is smaller than the Short-Side1 length.

Cutting and Pasting:

Open a new spreadsheet and enter the values as in Fig52 (or perform the following operations on a spreadsheet you have already made)

We will use CUT and PASTE to remove the 1 from Cell A1 and place it into Cell A5

Place the cursor in A1 Press EDIT (F2) CUT (F1) scroll to A5 press PASTE (F1) (Fig53)

Now we will COPY the 6 in Cell B1 and PASTE it into Cell B5

Place the cursor in B1 Press EDIT (F2) COPY (F2) scroll to B5 press PASTE (F1) (Fig54)

Now we will CUT Column A and PASTE it into Column C

EXIT that screen, Place the cursor in A1 and arrow up 1 space (Fig55)

Fig50

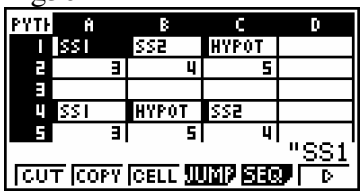


Fig51

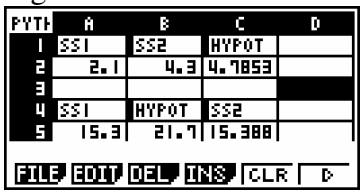


Fig52

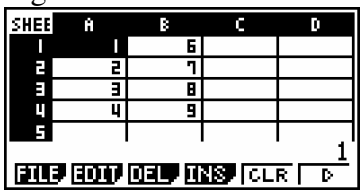


Fig53

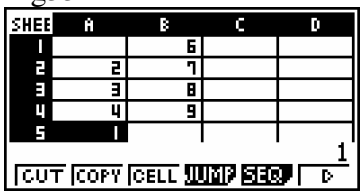


Fig54

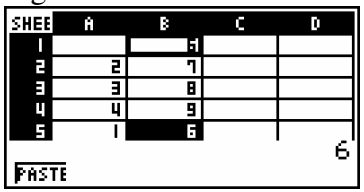
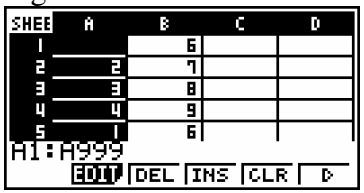
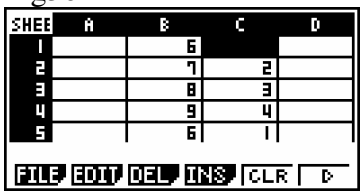


Fig55



Press EDIT (F2) CUT (F1) scroll to Column C press PASTE (F1) arrow down 1 place (Fig56)

Fig56



Now we will COPY Row 3 and PASTE it into Row 6

EXIT that screen, Place the cursor in A3 and arrow left 1 space
Press EDIT (F2) COPY (F2) scroll to Row 6 press PASTE (F1) and EXIT (Fig57)

Fig57

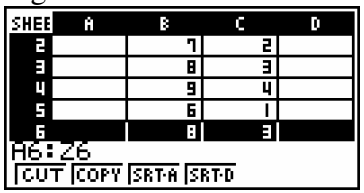
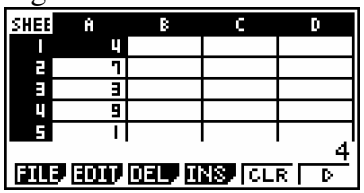


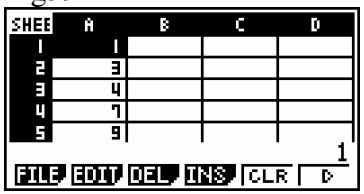
Fig58



Sorting a column of scores:

Open a new spreadsheet.
Enter the values as they appear in Fig58.
NOTE If the FILE button does not appear it is because the row is still highlighted. Use the arrow key to de-hi-light and the FILE button will reappear.

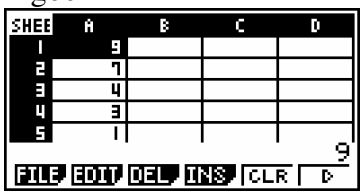
Fig59



Sort Column A into Ascending Order:

Hi-light Column A press EDIT (F2) SRT-A (F3) de-select column A (arrow down) (Fig59)

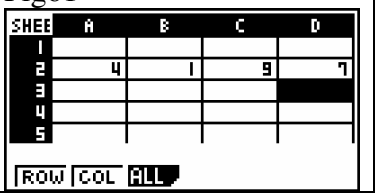
Fig60



Sort Column A into Descending Order:

Hi-light Column A press EDIT (F2) SRT-D (F4) de-select column A (arrow down) (Fig60)

Fig61



Sorting Rows of numbers:

Clear the spreadsheet ie **DEL (F3) ALL (F3) YES (F1)**
Enter the following numbers into Row 2 (Fig61)

Sort Row 2 into Ascending order: **Hi-light Row2 EDIT (F2) SRT-A (F3)** (Fig62)

Sort Row 2 into Descending order: **Press SRT-D (F4)** (Fig63)

Drawing Graphs from a Spreadsheet:

Arguably, when using the 9860, we want axes turned OFF when drawing statistical graphs …
and we want the axes turned ON when drawing X-Y graphs.
Let's turn the axes OFF
Press SHIFT MENU and **scroll up 3 places. Press OFF (F3) (FigB)**

Enter the data as in Fig64

Lets assume these are scores on similar tests for 4 students.
Lets find out if there is a correlation between Score1 and Score2 by first drawing a scatter plot.

Press EXIT to get to Fig65
Press F6 GRAPH (F1) SET (F6)
Note the default setting is StatGraph1. We can set up to 3 graphs at a time and display all 3 graphs on the screen simultaneously.
Leave the StatGraph1 setting. **Arrow down 1 place.**

Fig62

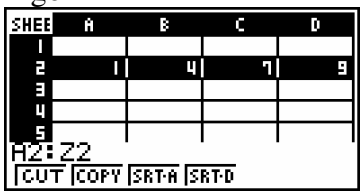
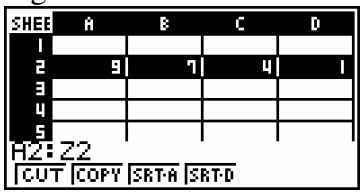


Fig63



FigB

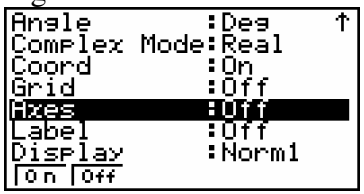


Fig64

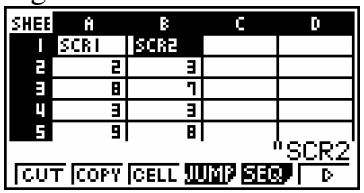
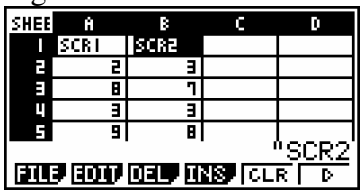


Fig65



Choose Scat (F1) Arrow down 1 place
Change X Cell Range to A2:A5 (With Cell Range hi-lighted, arrow past the A2 press the DEL button type 2 EXE
Similarly, **change Y Cell range to B2:B5**
Set Frequency to 1 (Press F1) This is because the data is not set out as a Frequency Distribution Table. Rather, the data is in a Column. Therefore each number is 1 score. Therefore the Frequency is set to '1' and NOT to a Column. (Fig66)

Press EXIT GPH1 (F1) (Fig67)

Investigating Correlation:

It seems there is a strong correlation.
To discover the exact correlation we can check the equation of the line of best fit.
Press CALC (F1) then X (F2) (Fig68)
Here is the equation of the line of best fit. Note that 'r' is the coefficient of correlation. R=0.99 indicating a very high correlation in this case.

Drawing the Line of Best Fit:

Press DRAW (F6) (Fig69)

Tracing the Graph:

The example here is obviously over-simplified for the purposes of instruction. Hopefully you are seeing the potential applications for these functions of the calculator. Usually in a statistical investigation you would want to trace the graph to predict values which are not plotted. In fact, given there is never a scale given the 'golden rule' is to trace every graph drawn.

Press SHIFT F1 (Fig70)
Use your arrow left-right to scroll through different values.

Performing a Y-Calculation (Y-CALC):

If we want to find out the exact Y value for a given X value (eg X=5)

Press G-Solv (SHIFT F5) Y-CAL (F1) enter 5 (Fig71)

Fig66

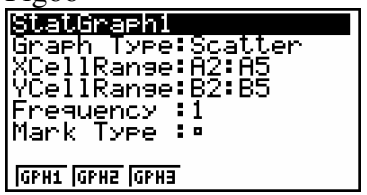


Fig67

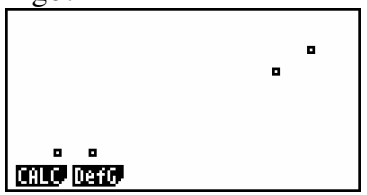


Fig68

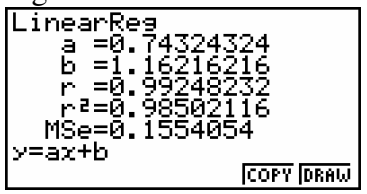


Fig69

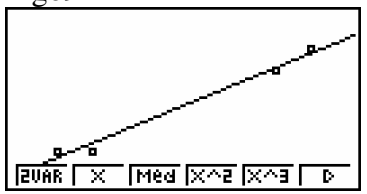


Fig70

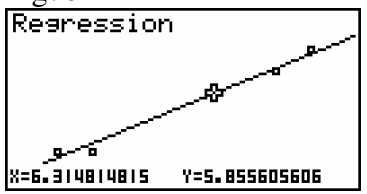
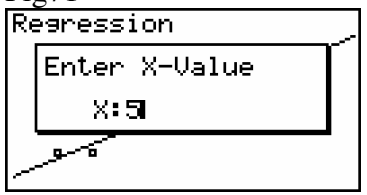


Fig71



Press EXE (Fig72)

To return to the trace facility:
Simply **Press SHIFT F1**

Drawing a Box and Whisker Plot from a Frequency Distribution Table:
Open a new spreadsheet.
Enter the values as they appear in Fig73

Press F6 GRPH (F1) SET (F6)
Leave the top setting on **StatGraph1.**
Arrow down to Graph Type, press F6 then Box (F2) (Fig74)

Set the XCellRange, Frequency and Outliers as in Fig75

Press EXIT, GPH1 (F1), and TRACE (SHIFT F1) (Fig76)
Note this Box and Whisker Plot is not missing the Median. The Median score = Q3.

NOTE: If you have axes and or grid or your trace is not working you need to make the necessary changes in SETUP. Return to the cell screen (press EXIT), press SHIFT MENU, arrow up, and **adjust the settings as in Fig77.**

Fig72

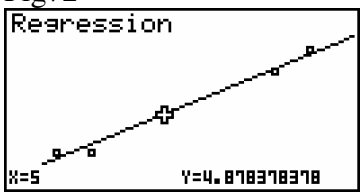


Fig73

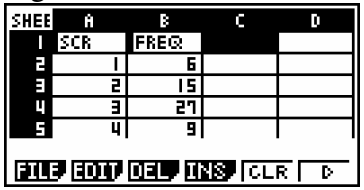


Fig74

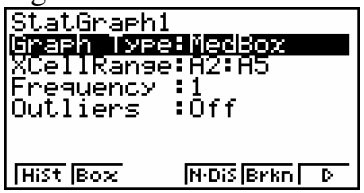


Fig75

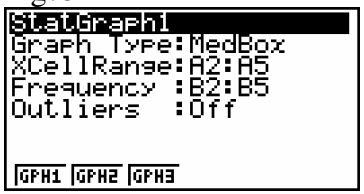


Fig76

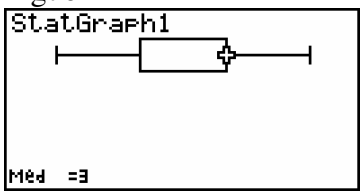
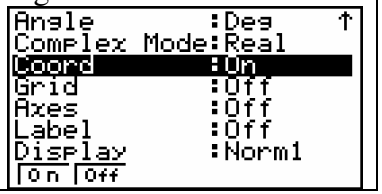


Fig77



Frequency Histograms:

What we are going to do here is –
1) Draw up a Frequency Distribution Table in STAT
2) Transfer the Table into SSHT
3) Draw a Histogram (and compare it to the Box Plot)
(Then in the next section we will create the Cumulative Frequency Table and Histogram)

Go to STAT mode. Either delete the data or find an empty file. NOTE: You need to know which STAT File you are in.
Make sure you are in STAT mode and NOT SSHT mode.
Enter the titles SCR and FREQ into the SUBs in Lists 1 and 2 by using **SHIFT ALPHA.**
Enter the scores 0 – 10 into List 1
Enter the following frequencies into List 2: 1 2 3 4 8 9 16 23 18 12 4 (Fig78)

Now we will recall these scores into SSHT. (Make sure you know the STAT file number you have entered the data into)
Go to SSHT (MENU 4) and create a blank sheet. Use EXIT and/or F6 to get to the screen in Fig79.

Press F6 RCL (F4) FILE (F2)
Select the appropriate File number (This demonstration entered the data into STAT File 5) and **keep 1st Cell at A1**
(Fig80)

Press EXE
Fig81 shows that the data has been transferred. Note that the titles have not been transferred. We will create these again.

Place the cursor in Row 1.
Press EXIT F6 INS (F4) ROW (F1) and then insert the titles (Fig82), remembering to cursor to the cell and then press ALPHA EXP first. (Fig82)

Now we will draw a Frequency Histogram.
Press EXIT and F6 (Fig83)

Fig 78

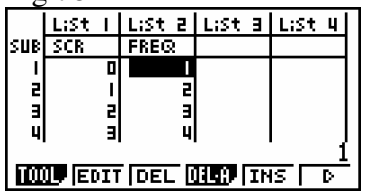


Fig79

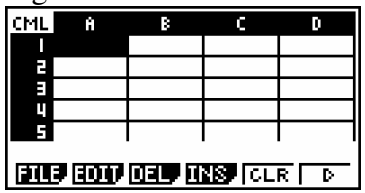


Fig80

Fig81

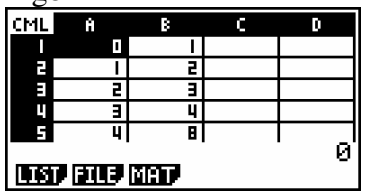


Fig82

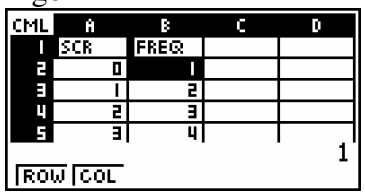
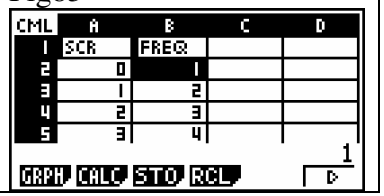
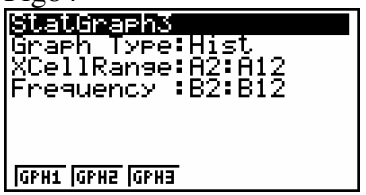


Fig83



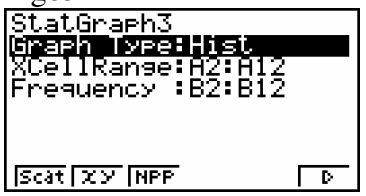
Press GRPH (F1) SET (F6)
With the cursor over Stat Graph press F3 to select **Stat Graph3** (Fig84)
NOTE: There is a good reason for using Stat Graph 3. Stay tuned!!

Fig84



Scroll to **Graph Type. Press F6 then HIST (F1)** (Fig85)

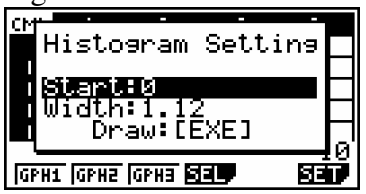
Fig85



Our scores are in cells A2 to A12 and our Frequencies are in cells B2 to B12.
Hence complete the other settings as in Fig85

Note: If you are in the set up screen and you do not know exactly what the range of cells the scores are in just EXIT, and return through SET (F6).
Press EXIT and GPH1 (F1) (Fig86)

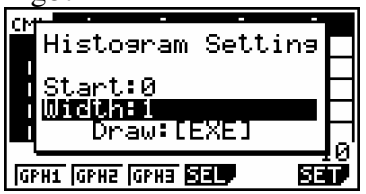
Fig86



NOTE: 'Start' means 'what is the beginning score for the histogram?'
'Width' means 'how wide will each column be?'

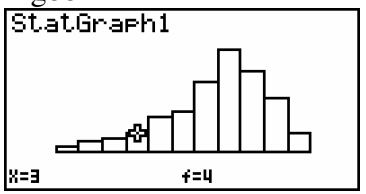
Complete the set up as in Fig87

Fig87



Press EXE and Trace (Fig88)

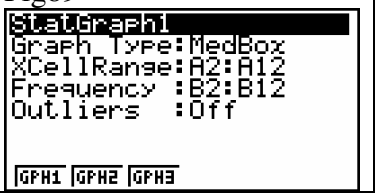
Fig88



Comparing the Histogram to the Box Plot:

It is sometimes worthwhile displaying the Box Plot for the same set of data over the Histogram.
We can place the Box Plot, at the top, with the Histogram on the same screen. (This is why we didn't use Stat Graph 1 for the Histogram)
Press EXIT SET (F6)
Complete the Settings as in Fig89

Fig89



Press EXIT SEL (F4)

Turn **Stat Graphs 1 and 3 On** (Fig90)

Press DRAW (F6) and complete the set up in Fig91

Press DRAW (F6) and TRACE
This is poignant in regard to the location of the quartiles and the median in relation to the histogram. (Fig92)

Transferring Data from a Column in SSHT to a List in STAT:

Occasionally there will arise a need to transfer data from SSHT to STAT
Return to the screen in Fig93
Let's assume we want to transfer the data in Column A into a list in STAT mode.
NOTE: you are currently in a workshop and using the facilitators calculators please ask about this step to avoid over-writing useful data in STAT mode.
You may want to check in STAT mode (MENU 2) and choose a list to transfer the data into. (For this instruction I will use List4)

Press F6 STO (F3) LIST (F2) (Fig94)

Fig90

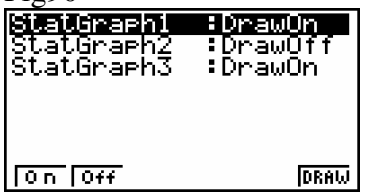


Fig91

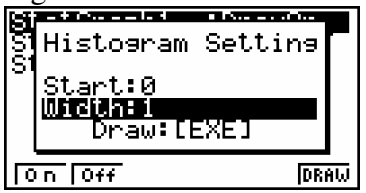


Fig92

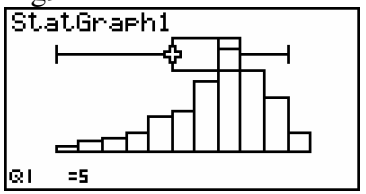


Fig93

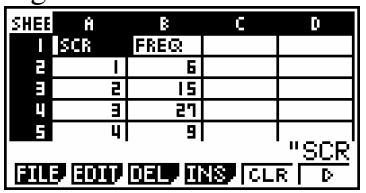


Fig94

Set the Cell Range and List number as in Fig95

Press EXE (or F6) MENU STAT EXE

Notice Column A has been placed in List 4 (Fig96)

Transferring Data from a List in STAT to a Column in SSHT:

Occasionally a need will arise to transfer data from STAT to SSHT.
Go to STAT and either enter some data and some lists or open a file which has data in it.
For this instruction data shown in Fig97 will be transferred to a spreadsheet.

Return to SSHT (MENU 4)
Open a new spreadsheet.
Press F6 RCL (F3) as in Fig98
Note that F1 gives the option to import a list and F2 gives the option to import a file (ie all the data in the 26 lists of the file that is currently open in STAT … in STAT there are 6 files each containing 26 lists)
These instructions will show List 2 being recalled.

Press LIST (F1) enter 2 for List and leave 1st Cell as A1 (Fig99)

Press EXE (or F6)
In these instructions List 2 has been transferred to Column A. You will have transferred the data you selected from STAT into SSHT. (Fig100)

Fig95

Fig96

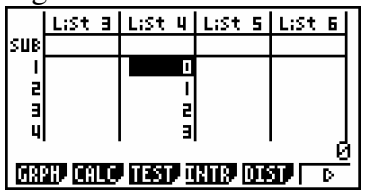


Fig97

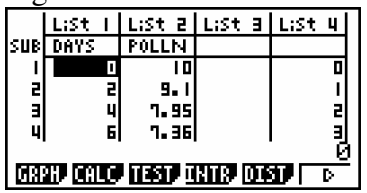


Fig98

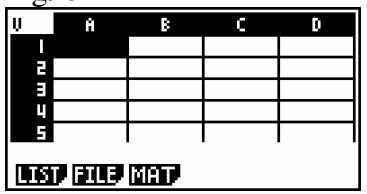
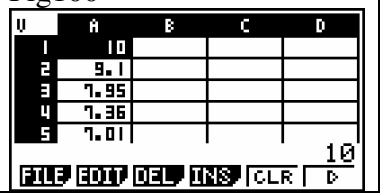


Fig99

Fig100



Now let's transfer an entire file.
This demonstration is using File 5 on the software version of the 9860.
You will need to choose a Stat File that you wish to transfer. To determine which STAT File your calculator is in, return to STAT and check the SETUP. The 3rd line down will tell you the file number (1 – 6). Seek help with this step if stuck.

Delete the data in the spreadsheet (DEL (F3) ALL (F3) YES (F1))
Press RCL (F4) Note: you may need to press F6 to get to RCL (Fig101)
Press FILE (F2)

Insert your desired File number (this demonstration is choosing File 5)
Leave 1st Cell at A1
Press EXE (or F6) (Fig102)

Fig 103 shows that STAT file 5 (Fig97) has been recalled into the spreadsheet.
If I want to save this I can using **EXIT F6 FILE (F1) SV-AS (F3)** etc

Conditional Commands:

These are quite fun to use when constructing simple spreadsheets that can enhance students understanding of various concepts. We will start by making a percentages worksheet.

Percentage Tester:

Open a new spreadsheet and name it PERCNT
Enter the labels as in Fig115

Enter 40 into B1, 10 into B2 and 4 into B3 as in Fig 116

With the **cursor in Cell B4 type: = If (F4) B1 x B2 ÷ 100 = B3 , 1 , 0)** (Fig 117)
What this formula is 'saying' is: If the percentage in B2 of the number in B1 = the number in B3 then a 1 will appear in B4. If the result is false a zero will be placed in B4.

Fig101

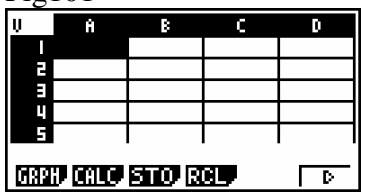


Fig102

Fig103

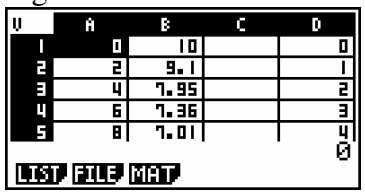


Fig115

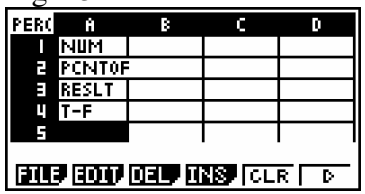


Fig116

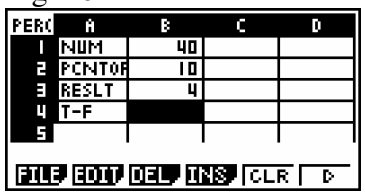
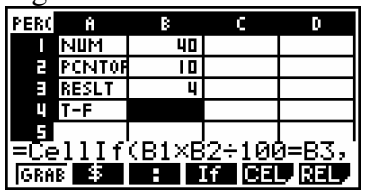


Fig117



Press EXE

Experiment with various sets of values. This sheet could be a great assist to a beginners percentage worksheet asking 'easy' percentage questions (eg Find: 10% of 41; 4% of 50; 20% of 35; etc)

Power – Root Tester:

Open a new spreadsheet and name it PWR-ROOT

Enter the labels and values as in Fig118

Into **Cell B4 enter the formula = If (F4) B1 ^ B2 = B3 , 1 , 0)**

Press EXE.

This could be an excellent sheet to use with a beginner worksheet containing not only questions such as $2^5 =$ and $4^3 =$ but also $\sqrt[3]{27} =$ and $\sqrt[5]{64} =$ so that students may better understand the relationships between powers and roots.

Fig119 demonstrates the solution to $\sqrt[5]{64} =$

Logarithm Tester:

Open a new spreadsheet and name it LOG

Enter the labels, values and formula (Cell If(B2=log B1,1,0)) as in Fig 120

Experiment further with this.

For further and more advanced information including practice questions refer to the manual 'Mathematics with a Graphics Calculator – Casio fx-9860 AU' by Barry Kissane & Marian Kemp, available at http://www.casioed.net.au/downloads/books/fx9860/orderBarryBook.pdf

Fig118

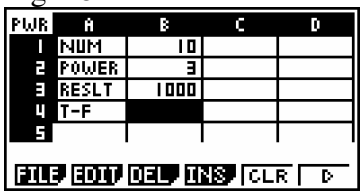


Fig119

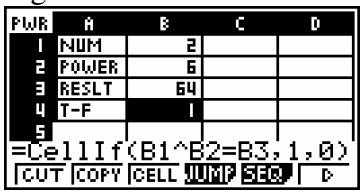


Fig120