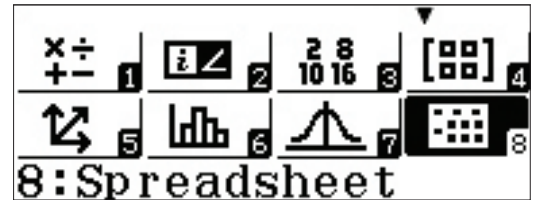


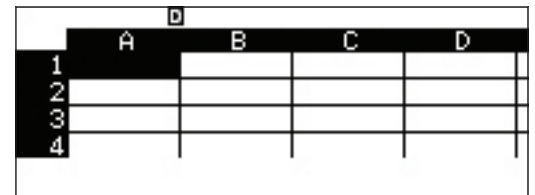
SPREADSHEET

The Spreadsheet mode is useful for studying the statistics of data that require more than two lists. It also supports recursive formulas, sequences, and series.

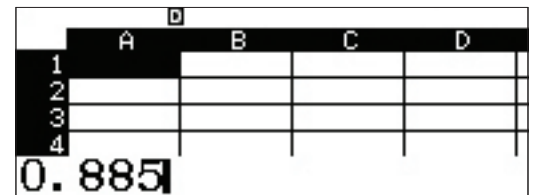
From the Main Menu, use the arrow keys to highlight the Spreadsheet icon, then press **≡** or press **8**.



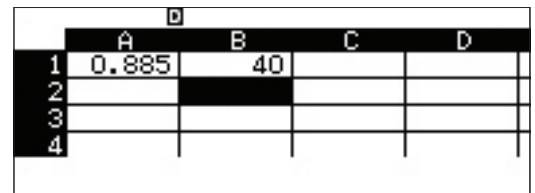
The ClassWiz spreadsheet looks and acts similarly to many popular software spreadsheet applications.



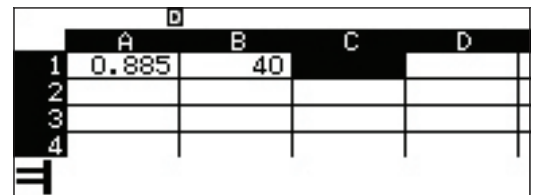
Investigate the mass of different common sizes of laundry detergent bottles, when the average density of liquid laundry detergent is 0.885 g/mL. Type **0** **.** **8** **8** **5** **≡** in cell **A1**.



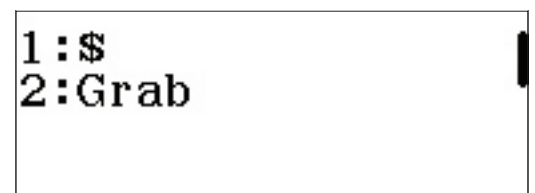
Use the arrow keys to move over to cell **B1**, and input **4** **0** **≡** to represent a 40 fl oz. (1 fl oz. = 29.5735 mL) bottle of laundry detergent.



Move to cell **C1**, and press **ALPHA** **CALC** (=) to create an equals sign. Like in other spreadsheet programs, this is the first step necessary when entering a formula.



To "grab" the value within a cell, press **OPTN** **2** (Grab).



SPREADSHEET

Navigate to cell **B1**, and press **Set** (**=**) to **Grab** the value in that cell.

	A	B	C	D
1	0.885	40		
2				
3				
4				

Set : [=]

This places a reference to cell **B1** within the formula.

	A	B	C	D
1	0.885	40		
2				
3				
4				

=B1|

To create a conversion from fluid ounces (fl oz.) to milliliters (mL), type **X** **2** **9** **.** **5** **7** **3** **5** **=**.

	A	B	C	D
1	0.885	40		
2				
3				
4				

=B1×29.5735|

The formula has correctly calculated that a 40 fl oz. bottle of laundry detergent has a volume of 1182.9 mL.

	A	B	C	D
1	0.885	40	1182.9	
2				
3				
4				

Formulas can also be typed directly, without using the **Grab** command.

Navigate to cell **D1** and input **ALPHA** **CALC** (**=**)

ALPHA **(←)** **(A)** **1** **X** **ALPHA** **(→)** **(C)** **1** **=**.

	A	B	C	D
1	0.885	40	1182.9	
2				
3				
4				

=A1×C1|

A 40 fl oz. (1182.9 mL) bottle of laundry detergent has a mass of 1046.9 grams.

	A	B	C	D
1	0.885	40	1182.9	1046.9
2				
3				
4				

Now, let's use the power of relational formulas to check some other bottle sizes:

To populate many different cells with the same value, press

OPTN **2** (Fill Value).

1:Fill	Formula
2:Fill	Value
3:Edit	Cell
4:Free	Space

SPREADSHEET

Input the density of laundry detergent as the **Value** and **A2:A6** as the cell **Range**. Press **ALPHA** **(←)** **(A)** **2** **ALPHA** **(=)** **(:)** **ALPHA** **(←)** **(A)** **6** **=** **=**.

```

Fill Value
Value :0.885
Range :A2:A6
    
```

Column **A** is now filled with the density value.

	A	B	C	D
1	0.885	40	1182.9	1046.9
2	0.885			
3	0.885			
4	0.885			

Next populate column **B** with additional bottle sizes.

Navigate to cell **B2**, and input the value 75 by pressing **7** **5** **=**.

	A	B	C	D
1	0.885	40	1182.9	1046.9
2	0.885	75		
3	0.885			
4	0.885			

To populate many different cells with the same formula, press **OPTN** **1** (Fill Formula).

```

1:Fill Formula
2:Fill Value
3:Edit Cell
4:Free Space
    
```

Input the formula **ALPHA** **(=)** **(B)** **2** **+** **2** **5** **=**.

```

Fill Formula
Form =B2+25
Range :B3:B3
    
```

Notice, the cell **Range** is pre-populated with the currently highlighted cell (**B3**).

```

Fill Formula
Form =B2+25
Range :B3:B6
    
```

Use the right arrow to edit only the end cell by pressing **▶▶▶▶▶▶** **DEL** **6** **=** **=**.

Scroll down to cell **B6** to make sure that the formula has been adjusted relative to each cell's position, so that cells **B2** to **B6** now display bottle sizes from 75 to 175 fl oz. (1 fl oz. = 29.5735 mL).

	A	B	C	D
3	0.885	100		
4	0.885	125		
5	0.885	150		
6	0.885	175		

=B5+25

SPREADSHEET

Navigate to cell **C1**, which still displays the formula used to convert fluid ounces to milliliters.

	A	B	C	D
1	0.885	40	1182.9	1046.9
2	0.885	75		
3	0.885	100		
4	0.885	125		

=B1×29. 5735

The ClassWiz has a “copy and paste” option that can be used instead of retyping the same formula repeatedly.

Press **OPTN** **▼** **2** (Copy & Paste).

1:Cut & Paste
2:Copy & Paste
3>Delete All
4:Recalculate

The formula from the currently highlighted cell (**C1**) has now been copied.

Scroll down one cell at a time (**▼** **≡**) to **Paste** this formula into cells **C2** through **C6**.

	A	B	C	D
1	0.885	40	1182.9	1046.9
2	0.885	75		
3	0.885	100		
4	0.885	125		

☑Paste: [=]

Column **C** now contains the volumes, in milliliters, of the different sizes of laundry detergent bottles.

To exit **Copy & Paste** mode, press **AC**.

	A	B	C	D
3	0.885	100	2957.3	
4	0.885	125	3696.6	
5	0.885	150	4436	
6	0.885	175	5175.3	

☑Paste: [=]

Time to practice! Use the same technique to **Copy & Paste** the mass calculation formula from cell **D1** into cells **D2** through **D6**.

	A	B	C	D
1	0.885	40	1182.9	1046.9
2	0.885	75	2218	
3	0.885	100	2957.3	
4	0.885	125	3696.6	

=A1×C1

If done correctly, Column **D** should show masses (in grams) as shown.

So, for example, a 175 fl oz. (5175.3 mL) bottle of laundry detergent has a mass of about 4.5 kg.

	A	B	C	D
3	0.885	100	2957.3	2617.2
4	0.885	125	3696.6	3271.5
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1

=A6×C6

A decent amount of data has been entered now. To check how much free space remains in ClassWiz’s memory, press

OPTN **4** (Free Space).

1:Fill Formula
2:Fill Value
3>Edit Cell
4:Free Space

1318 Bytes of memory remain as free space.

Numerical values require 10 Bytes each, while formulas require 17+ Bytes each.

Determine the average capacity of the different bottles of laundry detergent.

Navigate to cell **B7**, and press **OPTN**.

Scroll down three pages (⏴ ⏴ ⏴), and select **3** (Mean).

Type in the cell range of the average **ALPHA** **□□□□** (B) **1** **ALPHA** **□□□□** (:)
ALPHA **□□□□** (B) **6** **)** **□□□□**.

The average capacity is 110.83 fluid ounces.

If one of each of these bottles was purchased, what is the total weight of laundry detergent purchased that would be placed in a car?

Navigate to cell **D7**, and press **OPTN**.

Return again to the summary statistics calculation screen (⏴ ⏴ ⏴) and select **4** (Sum).



	A	B	C	D
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1
7				
8				



	A	B	C	D
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1
7				
8				

Mean(B1:B6)

	A	B	C	D
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1
7		110.83		
8				

	A	B	C	D
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1
7		110.83		
8				



SPREADSHEET

Use the **Grab** command rather than typing the locations of the cells in the cell range.

Press **OPTN** **2** (Grab).

Scroll up to cell **D1**, and **Set** it as the object to be Grabbed by pressing **≡**.

Use **ALPHA** **⏏** (:) to type a colon.

Grab cell **D6** as the ending cell in the cell range by pressing **OPTN** **2** **▲** **≡**.

Close the parentheses (**)**), and press **≡** to calculate the sum of the masses in cells **D1** through **D6**.

The bottles would have a total mass of 17404 grams, or about 17.4 kilograms.

But this is a mass, not a weight!

	A	B	C	D
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1
7		110.83		
8				

Sum (|

1 : \$
2 : Grab

	A	B	C	D
1	0.885	40	1182.9	1046.9
2	0.885	75	2218	1962.9
3	0.885	100	2957.3	2617.2
4	0.885	125	3696.6	3271.5

Set : [=]

	A	B	C	D
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1
7		110.83		
8				

Sum (D1 : |

	A	B	C	D
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1
7		110.83		
8				

Set : [=]

	A	B	C	D
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1
7		110.83		
8				

Sum (D1 : D6)|

	A	B	C	D
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1
7		110.83		17404
8				

SPREADSHEET

This is one example of the powerful ways in which various features of the **fx-991EX** can be combined.

Begin entering the formula as shown into cell **D8** by pressing

[ALPHA] [CALC] (=) [ALPHA] [sin] (D) [7].

Press **[SHIFT] [8] (CONV)** to access the Conversion menu.

Select **[4] (Mass)**.

Choose mass conversion **[4] (kg ▶ lb)**.

This will convert the mass from cell **D7**, which is currently in kilograms, into pounds.

Press **[=]**, and *Voila!*

Even ClassWiz's powerful Conversion feature can be used within the Spreadsheet module. But wait... 38 thousand pounds?!?

17404 grams needs to be converted into kilograms.

With cell **D8** highlighted, press **[OPTN] [3] (Edit Cell)**.

A cursor appears in the previously entered formula, allowing it to be edited.

	A	B	C	D
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1
7		110.83		17404
8				

=D7

1:Length
2:Area
3:Volume
4:Mass

1:oz▶g	2:g▶oz
3:lb▶kg	4:kg▶lb

	A	B	C	D
5	0.885	150	4436	3925.8
6	0.885	175	5175.3	4580.1
7		110.83		17404
8				

=D7kg ▶ lb

	A	B	C	D
6	0.885	175	5175.3	4580.1
7		110.83		17404
8				38370
9				

=D7kg ▶ lb

1:Fill Formula
2:Fill Value
3>Edit Cell
4:Free Space

	A	B	C	D
6	0.885	175	5175.3	4580.1
7		110.83		17404
8				38370
9				

=D7kg ▶ lb

SPREADSHEET

Use the right arrow key (▶) to move within the formula, inserting parentheses and a factor-of-1000 adjustment as shown. Press ▶ ◀ ▶ ▶ ÷ 1 0 0 0) =.

Phew! That's better. The car is no longer carrying 19+ tons of laundry detergent home. The actual total weight is a much more reasonable 38 pounds.

	A	B	C	D
6	0.885	175	5175.3	4580.1
7		110.83		17404
8				38370
9	=(D7÷1000)kg▶lb			

	A	B	C	D
6	0.885	175	5175.3	4580.1
7		110.83		17404
8				38.37
9				