

## Standard settings

When you first turn on a new calculator (or when you have reset to clear all the memories) it is already set to display certain features and to be used in a pre-determined way.

We can change these to suit the type of calculations that are to be performed.

What are the standard settings and what other options are there anyway?

Press MODE - *the screen looks a bit daunting doesn't it!*

Notice that there are a number of words already 'blacked out' - this means that these settings have already been selected.

The first row is flashing - this just means that the cursor is on the first row.

**Normal** means that numbers are written in the normal way. But on the same row, we could choose **Sci** or **Eng**. **Sci** means that the answers would be given in scientific notation.

If we wanted to have answers given in scientific notation, we would use the cursor keys to move the cursor so that it is blinking on **Sci**, however because Normal is still blacked out this is still the selected option. To change to **Sci**, when the cursor is flashing on **Sci**, also press ENTER. Notice that **Sci** becomes the selected choice.

The second row determines how many decimal places you may want in the answers.

The third row determines whether angles are expressed in radians or degrees. The next section deals with entering angles in both of these modes, however it is also necessary to remember the basic conversions from angles to radians and vice versa.

$$\text{Angle in radians} = \text{degree} \times \frac{\pi}{180}$$

$$\text{Angle in degree} = \text{radian} \times \frac{180}{\pi}$$



## Inverse trig calculations

Radian mode	Degree mode
<p><b>Example</b></p> <p>If <math>\sin \theta = 0.56934</math>, find <math>\theta</math>. (The solution will be in the first quadrant.)</p> <p>Press <b>2nd</b> <b>SIN</b> 0.56934 <b>ENTER</b></p> <p>The answer 0.6057... is returned. This means that <math>\theta = 0.6057\dots</math>.</p> <p>Convert this to degrees by multiplying by <math>\frac{180}{\pi}</math>,</p> <p>ie <math>\theta = 34.7042\dots</math></p> <p>This can be changed to DMS notation by pressing</p> <p><b>2nd</b> <b>MATRX</b> 4 <b>ENTER</b></p> <p>You should find that <math>\theta = 34^\circ 42' 15''</math> to the nearest second.</p>	<p><b>Example</b></p> <p>If <math>\sin \theta = 0.56934</math>, find <math>\theta</math>.</p> <p>Press <b>2nd</b> <b>SIN</b> 0.56934 <b>ENTER</b></p> <p>The answer 34.7042... is returned. This means that <math>\theta = 34.7042\dots^\circ</math></p> <p>This can be changed to DMS notation by pressing</p> <p><b>2nd</b> <b>MATRX</b> 4 <b>ENTER</b></p> <p>You should find that <math>\theta = 34^\circ 42' 15''</math> to the nearest second.</p>
<p>Any angle which is entered in DMS notation can be converted to the decimal equivalent by pressing <b>ENTER</b></p>	
<p>To change the answer above to the decimal equivalent, press <b>2nd</b> <b>(-)</b> to recall the answer to the cursor position and then press <b>ENTER</b></p>	<p>To change the answer above to the decimal equivalent, press <b>2nd</b> <b>(-)</b> to recall the answer to the cursor position and then press <b>ENTER</b></p>

# Transformation of data in a list

Data which is in a list can be transformed by any operation.

Suppose you wish to transform the data which is currently in L1 (as shown) by multiplying all list elements by 3 and placing these into L2.

Place the cursor on the heading of L2, and type  $3*L1$  followed by

The newly calculated data will be pasted into L2.

L1	L2	L3	2
2			-----
4			
6			
8			
10			
12			
14			

L2 = 3\*L1

L1	L2	L3	2
2	6		-----
4	12		
6	18		
8	24		
10	30		
12	36		
14	42		

L2(1)=6

However, if a change is made to L1, L2 will **not** be automatically updated!

For example, if the second element is changed to 4 (because you have entered the data incorrectly in the first place), the corresponding element in L2 is not changed.

L1	L2	L3	1
2	6		-----
4	12		
6	18		
8	24		
10	30		
12	36		
14	42		

L1(2)=6

If you wish any changes made in the original data to be also made to the transformed data, then a modification is necessary. (Actually, you are asking the calculator to behave like a spreadsheet.)

Put the cursor over the heading for L3. Now type " $3*L1$ " followed by  - the quotation marks make all the difference.

L1	L2	L3	3
2	6		-----
4	12		
6	18		
8	24		
10	30		
12	36		
14	42		

L3 = "3\*L1"

Note: Enter quote marks with the keys

L1	L2	L3	# 3
2	6	6	-----
4	12	12	
6	18	18	
8	24	24	
10	30	30	
12	36	36	
14	42	42	

L3(1)=6

Now if you change an element in L1, L3 will also automatically change.

Change the second element of L1 to 10, say.

Notice that L2 does not change, but L3 does.

L1	L2	L3	# 1
2	6	6	-----
4	12	12	
6	18	18	
8	24	24	
10	30	30	
12	36	36	
14	42	42	

L1(2)=10

Even if you sort L1, then L3 will be sorted with it, but L2 will be unchanged.