



Sharp EL-531WH

Math Calculations

Learning Skills

Introduction:

This sheet will teach you how to use the Sharp EL-531WH calculator to perform basic mathematical operations. Some of the keys that are available for basic calculations on your calculator are explained here. See also our handout for statistical functions. Any further queries please contact Support Central.

This sheet will teach you to:

- Use normal calculator mode
- Recognise basic keys you need to be familiar with
- Calculate using trig keys
- Put information into memory
- Perform basic calculations

1. Location of keys



2. Calculator Modes

Your calculator has 2 different modes. One is for normal calculations and the other for statistical calculations.

To put your calculator into normal mode press:

MODE **0**

A small DEG will appear on the top of the screen.

DEG

If Rad or GRAD appear then press **DRG** until you have DEG

3. Keys to be familiar with

ON/C Turns the calculator on and clears the screen. Clear the screen before each new calculation.

+/- This is the key you must use when you have a negative number to enter.

Example 3.1:

$$-3 + 4$$

Calculator steps: **+/-** **3** **+** **4** **=**

OR **3** **+/-** **+** **4** **=**

Answer = 1

[] and **[]** These are the brackets keys and are used in the same order as they appear in a sum.

a^b/c This is the key that allows you to work with fractions.

Example 3.2:

a. $\frac{1}{5} + \frac{3}{7}$

Calculator steps: **1** **a^b/c** **5** **+** **3** **a^b/c** **7** **=**

The screen display will look like 1 r 5.

The final answer will be shown as 22 r 35 which reads as $\frac{22}{35}$

b. $2\frac{3}{4} \times \frac{2}{5}$

Calculator steps: **2** **a^b/c** **3** **a^b/c** **4** **\times** **2** **a^b/c** **5** **=**

Answer = $1\frac{1}{10}$



This key will square a number

Example 3.3:

56^2 (this means 56×56)

Calculator steps:

Answer = 3136



This key will find the square root of a number

Example 3.4:

a. $\sqrt{16}$

Calculator steps:

Answer = 4

b. $\sqrt{3.45}$

Answer = 1.857417562



This key is the power key

Example 3.5:

8^4 (this means $8 \times 8 \times 8 \times 8$)

Calculator steps:

Answer = 4096



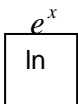
A logarithm is an alternative way of writing a number. It is particularly useful when working with large numbers.

Example 3.6:

$\log 600\,090$

Calculator steps:

Answer = 5.77821639



This key is next to the log key. You may encounter either of these functions in chemistry or physics subjects. They both involve the base number e, which has an approximate value of 2.7183. The log key mentioned above, as well as our everyday number calculations, revolves around a base number of 10.

Example 3.7:

ln 600 090

Calculator steps:

Answer = 13.30483492

Example 3.8:

$e^{8.3}$

Calculator steps:

Answer = 4023.872394



This is the exponent key. It is used when you need to enter a number into the calculator in scientific notation.

Example 3.9:

$$\frac{1.34 \times 10^5}{2.68 \times 10^2}$$

Calculator steps:

Answer = 500

Scientific Notation

Note: 1.34×10^5 is the scientific notation form of the number 134 000. The exponent key is replacing the $\times 10$. Only the decimal number and the power need to be entered.



The key is on the top line of the functions section of the calculator

4. Memory keys

To enter a number into the memory:

Example 4.1:

To enter 852.36 in the memory

Calculator steps: $\boxed{8} \boxed{5} \boxed{2} \boxed{\cdot} \boxed{3} \boxed{6} \boxed{\text{STO}} \boxed{\text{M+}}$

To recall or use the number stored in the memory:

Example 4.2:

$78 \times$ number stored

Calculator steps: $\boxed{7} \boxed{8} \boxed{\times} \boxed{\text{RCL}} \boxed{\text{M+}} \boxed{=}$

Answer = 66 484.08

To clear the memory

Calculator steps: $\boxed{0} \boxed{\text{STO}} \boxed{\text{M+}} \boxed{\text{AC}}$

5. Trigonometric keys

To find a ratio given an angle: the angle may be given as degrees or as radians

To swap between degrees and radian mode:

Press the $\boxed{\text{DRG}}$ key (top line on right)

This key swaps between degrees mode, radian mode and gradian mode. You will only need to use either degrees or radian measures.

Example 5.1:

$\text{Sin } 52^\circ$

Make sure your calculator is in degrees mode

Calculator steps: $\boxed{\text{sin}} \boxed{5} \boxed{2} \boxed{=}$

Answer = 0.7880107536

Example 5.2:

$\text{Tan } \frac{3\pi}{4}$

Make sure your calculator is in radian mode

Calculator steps: $\boxed{\text{tan}} \boxed{(} \boxed{3} \boxed{\times} \boxed{\pi} \boxed{\div} \boxed{4} \boxed{)} \boxed{=}$

Or $\boxed{3} \boxed{\times} \boxed{\pi} \boxed{\div} \boxed{4} \boxed{=} \boxed{\text{tan}} \boxed{=}$

Answer = -1

6. Review Exercise set 1

Use your calculator to find the value of the following.

- a. $18 \cdot 36^2$
- b. $\log 345$
- c. $\sqrt{253461}$
- d. $5 \cdot 78^4$
- e. $\frac{2}{3} + \frac{5}{12} + 1\frac{1}{8}$
- f. $(-283)^3$
- g. $\cos 26^\circ$

7. Performing calculations

Scientific calculators have an in-built order of operations. This means that the calculator will automatically work out operations in questions following the order of operation rules. Using an equal sign within a calculation or using brackets may be necessary at times in order to get the correct solution.

Example 7.1

$$2 + 3 \times 4$$

The calculator will automatically multiply before adding.

Calculator steps: $2 + 3 \times 4 =$

Answer = 14

Example 7.2

$$(2 + 3) \times 4$$

Use the brackets on your calculator or use the equal sign after the 3 to force the addition first.

Calculator steps: $(2 + 3) \times 4 =$

Or $2 + 3 = \times 4 =$

Answer = 20

Example 7.3

$$\frac{1}{25 + 34}$$

Calculator steps: $1 \div (2 5 + 3 4) =$

You must use brackets around the bottom line to total the numbers

Answer = 0.016949152

Example 7.4

$$\frac{5}{\sqrt{13 + 56}}$$

Calculator steps: $5 \div (\sqrt{ 1 3 + 5 6 }) =$

You must use brackets around the 13 + 56

Answer = 0.6019292654

Example 7.5

$$\frac{16 \cdot 46 - 18 \cdot 37}{5 \cdot 27}$$

Calculator steps: $(1 6 \cdot 4 6 - 1 8 \cdot 3 7) \div (5 \cdot 2 7) =$

Answer = -0.362428842

Example 7.6

$$523 - \frac{27^2}{9}$$

Calculator steps: $5 2 3 - (2 7)^2 \div 9 =$

Answer = 442

Example 2.7

$$\log 7892 \times 52^2$$

Calculator steps: $\log 7 8 9 2 \times (5 2)^2 =$

Answer = 10537.99386

Example 2.8

$$\cos 49^\circ \times 102$$

Calculator steps: $\cos 4 9 \times 1 0 2 =$

Answer = 66.91802096

8. Review exercise set 2

a. $48^2 + 75^3$

b. $\sqrt{305-156}$

c. $\frac{16 \cdot 4}{8 \cdot 12 - 5 \cdot 62}$

d. Add together $-5, -3, -1, 4, 6, 8$ and 12 then square the total.

e. $\frac{165}{\sqrt{15-8 \cdot 81}}$

f. $\log 59 \times 23 \cdot 123 \div (142 \cdot 34 - 56 \cdot 521)$

g. $\frac{8674 - 9634}{654 \cdot 2}$

h. $\frac{(5 \cdot 4 - 4 \cdot 7)^3}{12}$

i. $\tan 69^\circ \times 5.2$

j. $\frac{1}{\left(15 \cdot 34 / \sqrt{6}\right)}$

9. Answers

Review exercise set 1

- a. 337.0896
- b. 2.537819095
- c. 503.4491037
- d. 1116.121191
- e. $\frac{53}{24}$
- f. -22 665 187
- g. 0.8987940463

Review exercise set 2

- a. 424 179
- b. 12.20655562
- c. 6.56
- d. 81
- e. 66.31909936
- f. 0.4771368935
- g. -1.467441149
- h. 0.02858333
- i. 13.54646314
- j. 0.159679905

10. For more information

Visit our Learning Skills website at <http://www.csu.edu.au/division/studserv/learning/index.html>

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