

# Manual

Simple guide created for the purpose of explaining the usage of the app.

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## Inserting numbers and operators

Numbers and operators can be entered either by pressing the representing buttons or by pressing the keys 0-9, +, -, \*, /, ^ (must be pressed twice), ! or c. The  $\sqrt{\quad}$  symbol can be also entered by the Shift + V keyboard shortcut. The calculator won't allow you to insert two or more operators in a row, except for the minus sign and the factorial:

- -- will be interpreted as a +
- ! must be followed by an operator

## Using the operators

Following rules apply:

- **+** Expects 2 arguments. Can be followed by a - sign. Supports integers and real numbers, e.g.  $3.5+4$ ,  $2+-1$  ...
- **-** Same rules as for +. '- -' will be interpreted as '+', e.g.  $1-1 = 1+1$  ...
- **\*** Same rules as for +.
- **/** Same rules as for +, but the second operand cannot be 0, e.g.  $1/0$  will result in an error
- **^** Expects 2 arguments. First argument can be either integer or a real number. Second argument can only be an integer (positive or negative). Doesn't work if the first argument is 0 and second argument is negative.
  - Working examples:  $7^2$ ,  $-7^2$ ,  $7.3^2$ ,  $7^{-2}$  ...
  - Results in an error:  $0^{-1}$ ,  $1^{2.3}$ ,  $1^{-2.3}$  ...
- **$\sqrt{\quad}$**  Expects 2 arguments. First argument must be an integer (positive or negative). Second argument can be an integer or a real number. Results in an error if the first argument is 0, first argument is negative and second argument is 0, also doesn't work if the first argument is even and second argument is negative.
  - Working examples:  $2\sqrt{2}$ ,  $-2\sqrt{2}$ ,  $2\sqrt{2.1}$ ,  $0\sqrt{0}$  ...
  - Results in an error:  $0\sqrt{3}$ ,  $-2\sqrt{0}$ ,  $1.5\sqrt{2}$ ,  $2\sqrt{-1}$ ,  $-2\sqrt{-2}$ ...
- **!** Expects 1 argument on the left, must be followed by an operator. The argument needs to be a non-negative integer, e.g.  $0!$ ,  $2!$  ...
- **C** Expects 2 arguments, both must be non-negative and the first argument needs to be bigger or equal to the second one, e.g.  $0C0$ ,  $2C1$  ...

## Equal and erase buttons

When the = button is clicked (or by pressing Enter) the expression is evaluated and the result appears on the screen. If an error has occurred then the error info is displayed. You can use the result immediately in the next calculation by entering an operator or remove it from the screen by using the erase button or by entering a number. Last result can be accessed by clicking the ANS button.

By clicking the erase button (or by pressing Backspace) you are able to remove the rightmost character or the whole result (as described above).

## Operator priorities

Operators are organized into 4 categories. The order of evaluation is from top to bottom. Operators of equal priorities are evaluated from left to right as entered in the expression in the calculator (not by the order shown below!).

The categories are:

- **!, C**
- **$\sqrt{\phantom{x}}$ , ^**
- **\*, /**
- **+, -**

## Using the ANS, MR, MC, MS buttons

Used by clicking the buttons or by keyboard shortcuts Shift + A (ANS), Shift + R (MR), Shift + C (MC), Shift + S (MS)

Actions performed when used:

- **ANS** If there is any previous result available, it will be entered otherwise nothing will happen.
- **MS** Calculates the currently entered expression and stores the result.
- **MR** If available enters the stored value, otherwise nothing happens.
- **MC** Clears the stored value (won't be available for further usage).

## Keyboard shortcuts round-up

List of all keyboard shortcuts:

- **0-9** chosen number is entered
- **,** enters the decimal comma
- **Shift + A** represents the **ANS** button
- **Shift + R** represents the **MR** button
- **Shift + C** represents the **MC** button
- **Shift + S** represents the **MS** button
- **Shift + H** opens the guide
- **Shift + V** enters the  $\sqrt{\phantom{x}}$  symbol
- **+, -, \*, /, ^, !, c** chosen operator is entered
- **Backspace** represents the backspace button
- **Enter** represents the equal button