

MathHack is a simple programme designed to help you through lengthy calculations that often slow down complex numericals and unnecessarily make everything too difficult. MathHack currently works on Windows, Mac computers and x86\_64 Linux distros.

Since source code is available, it can be compiled to run on absolutely any OS, platform or architecture.

### **How To Use MathHack:**

Launch MathHack by double-clicking the MathHack Application.

Remember to press the ENTER key after inputting a value.

For example, When MathHack prompts you to 'Enter a number ', type your number, say 56, and press ENTER.

Mathhack, as of version v2, supports the following functionalities, of which you will have to choose one to use :

- **CALC**

CALC stands for Calculation. Regular Calculation like  $+$ ,  $-$ ,  $*$ ,  $/$ ,  $^$ ,  $\%$  can be done.

$^$  raises the value on the left to the power of the value on the right,  $\%$

stands for modulo division (where the output is the remainder) and  $|$  calculates the root of the value on the left with respect to the value on the right  $\rightarrow$  for example,  $9 | 3$  equates to 'cube root of 9'.

Use a calculator for more advanced calculations.

However, most calculators do not provide modulo division, which can be useful for things like checking divisibility.

- **FACT**

FACT stands for Factorisation. Using FACT, you can enter a number to view all its factors.

- **AVG**

AVG stands for Average. Using AVG you can enter numbers one-by-one, and when your list of numbers is complete, enter -101 to get the average of all entered numbers(excluding the -101).

- PRIME

Using PRIME, you can enter a number to check if it is prime or not.

- PMFACT

and PMFACT stands for Prime Factors. This allows you to enter a number see all its unique prime factors. This is not the same as prime factorisation, but can help in the process.

- TAB

TAB stands for table. TAB allows you to enter a number and the MathHack will generate the multiplication table of the number from 2 to 19

- FCTRL

FCTRL stands for Factorial. It allows you to calculate the factorial of a whole number.

- EQ

EQ function allows you to calculate real as well as complex roots of a quadratic equation.

You must input the values of coefficients a , b and c. MathHack will output The value of the discriminant as well as the roots.

- HCF

HCF function calculates the Highest Common Factor aka Greatest Common Divisor of two numbers.

- SMP

SMP function simplifies a fraction. You must input the values of the numerator and the denominator, it will return the simplified fraction.

- TCAL

TCAL expands to 'Trigonometric Calculator'. You must select the unit of the angle (rad or degree) , and enter a trigonometric function + an angle. For example, to calculate  $\tan 42^\circ$ , you would enter d and then enter  $\tan 42$  . Radian measures can be entered only in decimals, not as fractions.

. TTAB

TTAB expands to 'Trigonometric Table'. You will select unit (rad or degree) , and then enter the angle. TTAB function outputs the value of all trigonometric functions of the entered angle.

Entering '**exit**' will terminate MathHack .

**Updates :**

MathHack is under active development and improvement and hence will be getting regular updates.

Updated versions will have more functions or contain overall improvements in UI, utility or performance. These updates are posted at the MathHack webpage.

Check for updates @ <https://sites.google.com/view/mathhack>

If you see a higher version of MathHack available than what you are using, download the newer version from the website and you may then delete the older MathHack file.

Sometimes, updates may be significant enough to require you to read the 'ReadMeFirst' again to understand new features. This is generally not the case, but if , for example, a new function XYZ is added, you'll have to read the document to understand what it does.

Thanks for having the patience to read this guide. You can now use MathHack easily.

In case of feedback or help queries, contact me at [apjo@tuta.io](mailto:apjo@tuta.io)

If You find MathHack useful, consider telling your friends who may need it.

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*MathHack is made by Anant , who is also a student bothered by impractical calculations when solving questions in subjects like Physics.He too feels that often this math can get in the way of deeper conceptual understanding.*

*MathHack is his personal project written in C to solve this issue, and is free to use for all.*  
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