COMPLEX CALCULATOR USING ARDUINO

Component required:

1. Arduino Uno or Mega
2. Keypad (4x4) or
   you can use (any MxN) but then you need to change in code during defining Rows and Columns. In my code I used it for 4x4 keypad.
3. LCD display
4. Potentiometer
5. 10k resistor

Features:

This calculator will support facilities like:

1. Basic operation
   ADD, SUB, MULT, MOD, Reminder

2. Trigonometric operations

3. Log (both natural and base 10), Pow (x, y), Exp(x), Sqrt (), etc.

4. Continuous operation
   like: 2+3 = 5 then -4 to result (5-4 =1) then *7 to result (1*7 = 7) then *7 to result (7*7 = 49) then Sqrt (49) = 7 …. till you want.

5. Can able to compute
   Tan(x) = y; then use this value of y and compute cos(y) = z, then you want to add let's say "p" in z, that is z + p = s, then you want to take Sqrt(s) and so on till you want to do computation. Above statement can be written as:
   Sqrt(cos(tan(x)) + p) where x and p are input variable.

6. BODMAS computation
   like: 2+6-5*87/65……till you want.

How to run the code:

Note: Used "D" for enter operation.

1.For simple calculation:

Run the code. Then on serial monitor you will see the list of operation you want to like to do. Then enter the number in LCD via keypad. Then press "D". After that a message will be shown on LCD "You have chosen: (number)".

Then follow the serial monitor to give input using keypad and press "D". if code want for second number for some of operations then simply enter as previous.

Then you will get result in second line. Some demonstration is attached in the file.

2.Now for feature 4 and feature 5:
After getting result. You simply enter the operation number (like: 1.ADD, 2.SUB..., etc. see operation list in serial monitor) in LCD using keypad then press “D”. Now if it is double valued operation like ADD, SUB, POW, etc. then enter second input using LCD and press “D”. then you will see result in second line. Now repeat this until you want. Some demonstration is attached in the file.

3.BODMAS computation:
Run the code. Then enter “15” in LCD using keypad. This is because 15^{th} operation is BODMAS and for BODMAS, I have implemented a function in my code. Now, after that follow some rule:
1.Press ‘A’ before any number to enter in LCD and then press ‘D’.
2.Press ‘C’ and then press 1 for ADD, 2 for subtract, 3 for mult, 4 for div operation and press ‘D’.
3.press ‘B’ for stop giving the inputs.
Like:
In order to enter 2+3-5*7/9:
You should do:
First press ‘A’ then enter 2 using keypad. Then press D. on screen you will see “2”.
Now, press ‘C’ then press 1 using keypad. Then press D. on screen you will see “2+”.
Now, press ‘A’ then enter 3 using keypad. Then press D. on screen you will see “2+3”.
Now, press ‘C’ then enter 2 using keypad. Then press D. on screen you will see “2+3-“.
Now, press ‘A’ then enter 5 using keypad. Then press D. on screen you will see “2+3-5“.
Now, press ‘C’ then enter 3 using keypad. Then press D. on screen you will see “2+3-5*“.
Now, press ‘A’ then enter 7 using keypad. Then press D. on screen you will see “2+3-5*7“.
Now, press ‘C’ then enter 4 using keypad. Then press D. on screen you will see “2+3-5*7/“.
Now, press ‘A’ then enter 9 using keypad. Then press D. on screen you will see “2+3-5*7/9“.

Now, press ‘B’ to stop giving inputs. Then on second line you will see the result of BODMAS on LCD Display.