Assignment 6
Due: 2:00PM 10/11/19

Use an **`do while`** loop in Fortran program to implement Simpson's rule to evaluate the integral given by

$$\int_1^{20} \left[\left(x + \cos(x) \right) e^{\cos(x)} + a e^{-\frac{(x-b)^2}{c}} \right] dx \ .$$

where $a = 4000$, $b = 15.15$, and $c = 0.01$. Indicate in the comment block (at the beginning of your code) what value you obtained for the integral as a function of the number of subintervals used, i.e. put a table of the value of the integral versus the number of subintervals in the comments of the header block. Clearly indicate in the header block comments what you think is the most accurate value for the integral and why you think it is the most accurate value.

Make sure that you code compiles (programs receive a zero if they are not able to be compiled on the Math SINC site machines) and make sure to test it by running it and observing that you get the correct answer! Submit only the source code file, i.e. the .f08 file containing the Fortran code, by uploading it into blackboard using the "attachments" button under the assignment. **Do not submit the executable file.**
If you submit the executable file you will receive zero credit

If you have any problems see the TAs or the instructor for help. Do not ask other students to help you debug your code. Submissions via email will not be accepted. **DO NOT WAIT UNTIL THE LAST MINUTE TO SUBMIT THE ASSIGNMENT! LATE ASSIGNMENTS WILL NOT BE ACCEPTED.**

Note:

1. **All Fortran programs must contain the implicit none statement or they will receive an automatic grade of zero.** There are no exceptions to this policy.

2. All programs should have a block of comment statements at the beginning of the code containing your name, **section number** (consult SOLAR if you are in doubt as to which section you are registered for), and a description of what the code does. Consult the lecture notes for examples.

3. Your file should be named in the form of <*yourlastname*>_<*yourIDNumber*>_<*hw#*>.f08 (Do not put the # sign in the file name!)

4. All programs must compile using the gfortran compiler on the Mathlab machines. **Programs that do not compile will receive an automatic grade of zero.** There are no exceptions to this policy

5. Programs must be uploaded into the blackboard assignment page. Programs may not be submitted via email or hardcopy. Programs that are not uploaded into the blackboard assignment page will not be graded.