Exponential Series :

The series to find exponential values of different x values is :

$$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}$$

$$e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \cdots$$

There is one c program that calculates true values of exp(x). uploded as Q1_MT2018522.c

The excel sheet contains all the values of x with itterations as 10 and 20.

The values obtained from arm assembly Keil has been compared with true values(calculated by c program) and error in percentage has been found out.

The graph shows the how the percentage of error is reducing with increasing number of iterations.

It also shows that the lower values of x (i.e 1 to 5) are unaffected with no. of itterations.

The graphs are in excel sheet only.

Tan(x) Series :

The tanx series is implemented using sine series and cosine series

As tanx = sinx/cosx

$$\cos x = \sum_{n=0}^{\infty} (-1)^n \frac{x^{2n}}{(2n)!}$$

$$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \ldots$$

The excel sheet contains different values of x for which tanx is calculated by using keil and compared with values obtained by c program.

The percentage error reduces as the no. of iteration increases.

The graph is in excel sheet.