Lab #1 – Part 2

Truncation Error

Write a C++ program proving that to approximate $e^{10.5}$ using Taylor series with an error less than 10^{-12}:

    a) We will need at least 17 terms around a=0.

    b) We will nead only 17 terms around 10.

    What do you conclude from these calculations?

Lab #1 – Part 3

Taylor Series

Write a C++ program equivant to the following code to calculate the exact value for

$e^{x=10}$ using Taylor series around a=0.

```c
#include <stdio.h>
#include <math.h>
int main() {
   float x = 10, sum = 1, term = 1, temp = 0;
   int i = 0;

   while (temp != sum) {
     i++;
     term = term * x / i;
     temp = sum;
     sum = sum + term;
     printf("%2d %-12f %-14f\n", i, term,
sum);
   }
   printf("exact value = %f\n",
exp((double)x));
   return 0;
}
```