series2

Write a C program that reads in ***x*** as a double-typed number, and prints the result (with 2 digits after he decimal point) of the following formula. You may assume that –1 <= *x* <= 1. No need to check user input error.

$$1-\frac{x}{1!}+\frac{x^2}{2!}-\frac{x^3}{3!}+\frac{x^4}{4!}-.....+\frac{x^{20}}{20!}$$

A sample program template is given below:

```
#include <stdio.h>
int main()
{
   /* Write your code here */
   return 0;
}
```

Sample input and output sessions are given below:

(1) Test Case 1:

```
Enter a number:
0.5
Result = 0.61
```

(2) Test Case 2:

```
Enter a number:
1
Result = 0.37
```

(3) Test Case 3:

```
Enter a number:
-1
Result = 2.27
```

(4) Test Case 4:

```
Enter a number:
0.7
Result = 0.50
```

```
#include <stdio.h>
int main()
{
   double x;
   double result = 1.0;
   double term = 1.0;
   int i;
   int sign = 1;
   int d = 1;


   printf("Enter a number:\n");
   scanf("%lf",&x);

   for(i=1;i<=20;i++)
   {
      d*=i;
      sign = -sign;
      term *= x;
      result += sign*term/d;
   }
   printf("Result = %.2f",result);

  return 0;
}
```