```c
/*********************************************************************/
/*                                                                   */
/*    A sample solution for Homework-2 Part-1.                       */
/*                                                                   */
/*                                                                   */
/*********************************************************************/

/* Include libraries */
#include <stdio.h>
#include <math.h>

#define N 10                /* max n */
#define EPSILON 0.0001      /* A very small error range for comparing real numbers*/
#define NOT_DEFINED -1      /* Function f returns -1 if its inputs are not valid */

/* Computes sqrt(z * ((1 - (n + 1) * pow(z, n) + n * pow(z, n + 1)) / (pow((1 - z), 2))) + exp(-z * n)) for a given z and n */
double f(double z, double n);

int main()
{
    /* Variable decleration */
    double z;
    int i; /* counter */
    double result;

    printf("z: ");
    scanf("%lf", &z);

    for  (i = 1; i <= N; ++i)
    {
        result =  f(z, i);

        if ((result >(NOT_DEFINED - EPSILON)) && (result <(NOT_DEFINED + EPSILON)))
            return NOT_DEFINED;

        printf("f(%.1f, %2d) = %20.4f\n", z, i, result);
    }


    return 0;
}

/* Computes sqrt(z * ((1 - (n + 1) * pow(z, n) + n * pow(z, n + 1)) / (pow((1 - z), 2))) + exp(-z * n)) for a given z and n */
/* It returns -1 if there in an unvalid input */
double f(double z, double n)
{
    double result;       /* A local variable for holding the computed result */

    if ((z < 0) || (z == 1)) /* f is not defined for negative real numbers and 1. */
    {
        printf("Function f is not defined for z = %f!\n", z);
        return NOT_DEFINED;
    }

```

```
55
56      /* compute the function */
57      result = sqrt(z * ((1 - (n + 1) * pow(z, n) + n * pow(z, n + 1)) / (pow((1 - z),
        2))) + exp(-z * n));
58
59
60      return result;
61
62  }
63
```