```c
/*############################################################*/
/*HW01_HASAN_MEN_131044009_part1.c                            */
/*_____________________________                               */
/*Written by Hasan MEN on February 19, 2015                   */
/*                                                            */
/*Description:                                                */
/*____________                                                */
/*This program calculate some mathmatical problem             */
/*G(x) , F(x) , FOG(x) , GOF(x)                               */
/*INPUT:                                                      */
/*______                                                      */
/*  -x :user defined                                          */
/*  -Y :constant macro                                        */
/*OUTPUT:                                                     */
/*_______                                                     */
/*  -FOG(X) and GOF(X)                                        */
/*############################################################*/

#include <stdio.h>
#include <math.h>
#define Y 8.0

/*############################################################*/
/*                                                            */
/* Calculate G(a) function with basis matematical operators   */
/* a : number which read from file.                           */
/*                                                            */
/*############################################################*/
double gx(double a);

/*############################################################*/
/*                                                            */
/* Calculate F(x), use sin,sqrt,pow function and return       */
/* --result of F(x)                                           */
/*                                                            */
/*############################################################*/
double fx(double a);




int main(){
    /*START_OF_MAIN*/


    int x;/* user defined variables*/

    FILE *inp;  /* input file pointer */
    FILE *outp; /* output file pointer */
    /*END_OF_VARIABLES*/

    /* Open files */
    inp = fopen("Variables.txt","r");
    outp= fopen("Results1.txt","w");

    /* scan x and print screen all variables */
    fscanf(inp,"%d",&x);
    printf("X is %d and Constant Y is %.3f\n",x,Y);


    /* Sending x in the function so a assigned x */
    /* write gx and fx , using function in 3th part of fprintf func.*/
    printf("G(X) = %f and F(X) = %f\n",gx(x),fx(x));

    /* call gx and fx to and send value of fx and gx */
    /*write output files fogx and gofx */
    printf("GOF(x) = %f , FOG(x) = %f \n",gx(fx(x)),fx(gx(x)));
    fprintf(outp,"%f\t%f ",gx(fx(x)),fx(gx(x)));


    /*Close FILES*/
    fclose(inp);
    fclose(outp);

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    return 0;
    /*END_OF_MAIN*/
}

double gx(double a){

    /*CALCULATE gx(a) and return value */
    return a+(1.0/(a+(Y/(2.0*a))));
}

double fx(double a){
    /*CALCULATE gx(a) and return value */
    return sin(pow((((a+Y)/a)+sqrt(log((pow(3.0,a)/(2.0*a+1))))),2.5));
}

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```