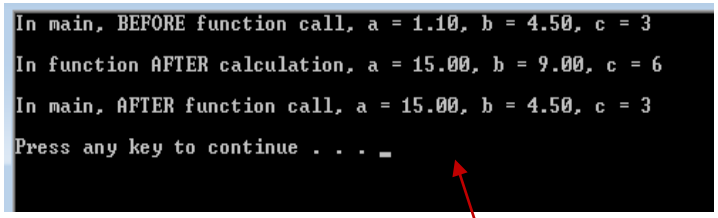
Practice Problem



Does it make sense why these are the results?

- Create a program that:
  - Creates double variables a=1.1 and b=4.5
  - Creates integer variable c=3
  - Prints a, b, and c to the screen (2 decimal places, if applicable)
  - Calls my_function, sending b and c, and receiving a
  - Prints a, b, and c to the screen (2 decimal places, if applicable)

- my_function should:
  - Create double variable a
  - Assign b=b*2, c=c*2, a=b+c
  - Prints a, b, and c from the function (2 decimal places, if applicable)
  - Returns variable a to the main

```c
#include <stdio.h>
#include <stdlib.h>

double my_function(double, int);  //Function

int main()
{
    //Declare variables
    double a = 1.1, b = 4.5;
    int c = 3;

    //Print
    printf("In main, BEFORE function call, a = %.2lf, b = %.2lf, c = %d\n\n", a, b, c);
    //Function call
    a = my_function(b, c);
    //Print
    printf("In main, AFTER function call, a = %.2lf, b = %.2lf, c = %d\n\n", a, b, c);


}

//Function
double my_function(double b, int c)
{
    double a;
    b = b * 2;
    c = c * 2;
    a = b + c;

    //Print
    printf("In function AFTER calculation, a = %.2lf, b = %.2lf, c = %d\n\n", a, b, c);

    //Return variable a
    return(a);
}
```

Practice Problem

$$A = P\left[\frac{i(1+i)^N}{(1+i)^N - 1}\right]$$

- func_header should not send any variables or return any. It should print a header with your names and group number.
- In the main program, have the user enter a value for a principle amount of money to be borrowed (P), the number of months to pay the loan back (N), and a monthly interest rate (i). The user should enter the value as a percent and the program should divide it by 100 for the calculation.
- func_A should receive the three values entered above and return A. The main should then print out the value of A.
- Put everything (except func_header) in a loop so the user can try several payment plans.

Try your program with these values:

P=$3000, N=30, i=1%

P=$100,000, N=360, i=.5%

P=$20,000, N=48, i=.2%

Answers you should get are:

116.24; 599.55; 437.40

```c
#include <stdio.h>
#include <stdlib.h>
#include <math.h>

//Functions
void func_header();
double func_A(double, double, int);

int main()
{
    //Declare variables
    double P, i, rate, A;
    int N;
    char again;

    //Call first function
    func_header();

    do
    {
        //Get values from user
        printf("Enter P:\n");
        scanf("%lf", &P);

        printf("Enter rate:\n", &rate);
        scanf("%lf", &rate);

        printf("Enter N:\n");
        scanf("%d", &N);

        i = rate / 100;
        printf("Rate is i=%lf\n", i);

        //Call second function
        A = func_A(P, i, N);
        //Print A
        printf("A=%lf\n", A);

        //Do again?
        printf("Again?\n");
        scanf(" %c", &again);

    } while (again == 'Y' || again == 'y');


}
```

```c
void func_header()
{
    printf("Program to calculate A\n");
}

double func_A(double P, double i, int N)
{
    //Declare variables
    double A, numer, denom;

    //Calculate A
    numer = i*pow((1 + i), N);
    denom = pow((1 + i), N) - 1;
    A = P*(numer / denom);

    //Return value
    return(A);
}
```