# Lab 2: Solving Simple Problems In C

Lab 2

CPRE 185, Section M

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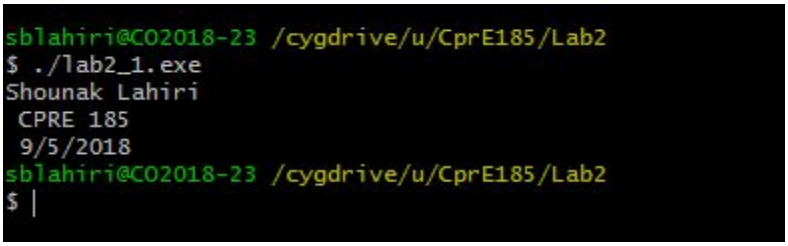
Submission Date:

9/7/2018

# Problem 1

## Output:




The main problem I had when making this program was figuring out the commands to get the program to run in Cygwin.

## Source Code:

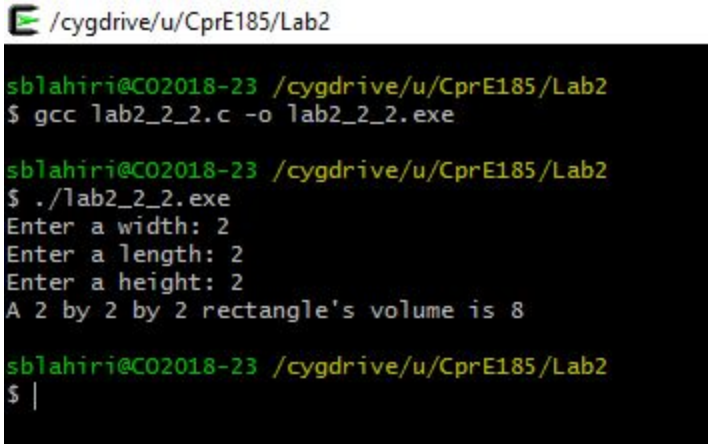
```
int main()
{

    /* Put your code after this line */

      printf("Shounak Lahiri\n CPRE 185\n 9/5/2018");


    return 0;

}
```

# Problem 2

## Output:

**Part 1:**


**Part 2:**




## Source Code:

**Part 1:**

```
int main()
{

    /* Put your code after this line */
int x, y;
printf("Enter a width: ");
```

```
scanf("%d", &x);
printf("Enter a length: ");
scanf("%d", &y);
printf("A %d by %d rectangle's area is %d\n", x, y, x*y );

    return 0;

}
```

**Part 2:**

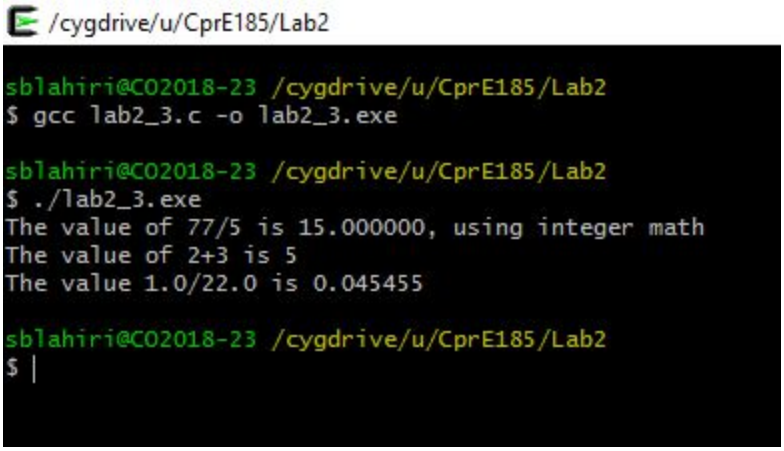
```
#include <stdio.h>
#include <math.h>

int main()
{

       /* Put your code after this line */
int x, y, z;
printf("Enter a width: ");
scanf("%d", &x);
printf("Enter a length: ");
scanf("%d", &y);
printf("Enter a height: ");
scanf("%d", &z);
printf("A %d by %d by %d rectangle's volume is %d\n", x, y, z, x*y*z );

      return 0;

}
```

# Problem 3

## Output:

*Lab2_3.c original output:*
The value of 77/5 is 0.000000, using integer math
The value of 2+3 is 0
The value 1.0/22.0 is 1952257862

*Corrected Output:*



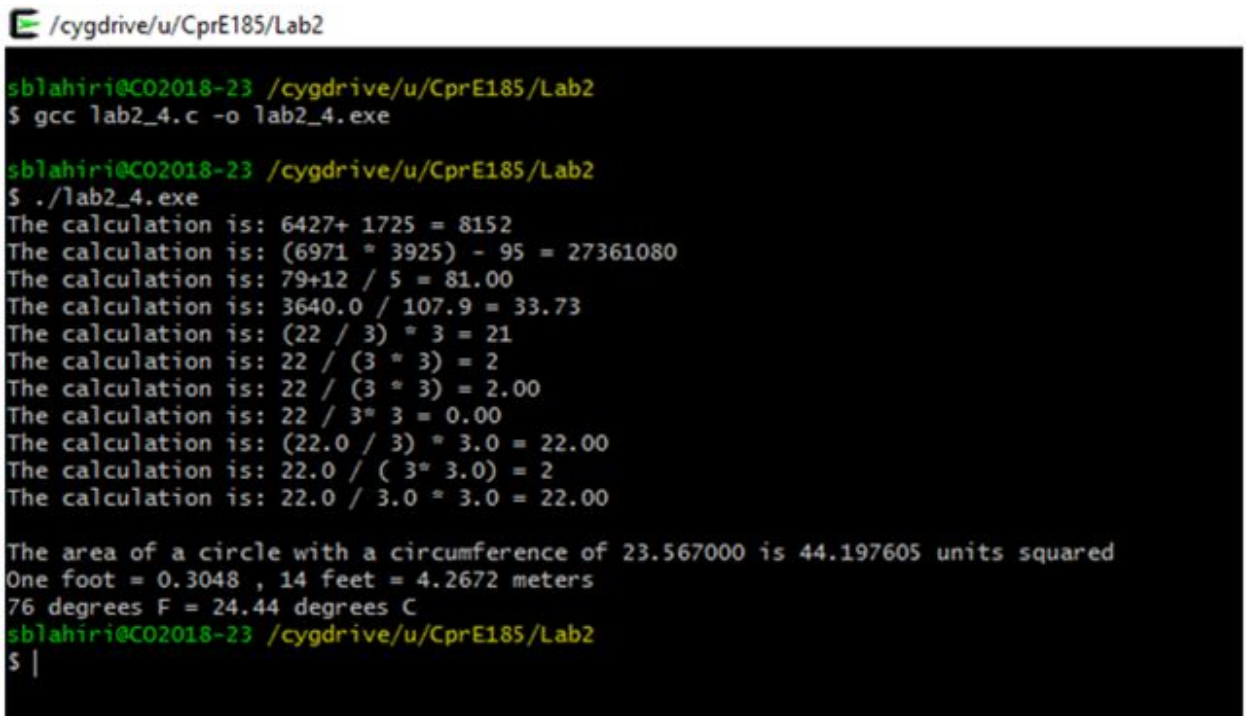

## Source Code:

```
int main()
{
    int integerResult;
    double decimalResult;

    decimalResult = 77 / 5;
    printf("The value of 77/5 is %lf, using integer math\n", decimalResult);
       /*
          Changed from integerResult to decimalResult so that the compiler outputs
the value for
          the variable at the %d location in the printf statement.
       */

    integerResult = 2 + 3;
    printf("The value of 2+3 is %d\n", integerResult);
       /*
          Added the variable integerResult so that the printf statement outputs the
```

```
value
          of the variable integerResult at the %d location in the statement.

       */

    decimalResult = 1.0 / 22.0;
    printf("The value 1.0/22.0 is %lf\n", decimalResult);
       /*
          Changed %d to %lf because the variable decimalResult is defined as a
double
          not an integer.
       */

    return 0;
}
```

# Problem 4:

## Output:




## Source Code:

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

int main()
{
	int a, b, e, f, j;
	double c, d, g, h, i, k;

	a= 6427+ 1725;
	b= (6971 * 3925) - 95;
	c= 79+12 / 5;
	d= 3640.0 / 107.9;
	e= (22 / 3) * 3 ;
	f= 22 / (3 * 3);
	g= 22 / (3 * 3);
```

```
	h= 22 / 3* 3;
	i= (22.0 / 3) * 3.0;
	j= 22.0 / ( 3* 3.0);
	k= 22.0 / 3.0 * 3.0;

	printf("The calculation is: 6427+ 1725 = %d\n", a);
	printf("The calculation is: (6971 * 3925) - 95 = %d\n", b);
	printf("The calculation is: 79+12 / 5 = %.2lf\n", c);
	printf("The calculation is: 3640.0 / 107.9 = %.2lf\n", d);
	printf("The calculation is: (22 / 3) * 3 = %d\n", e);
	printf("The calculation is: 22 / (3 * 3) = %d\n", f);
	printf("The calculation is: 22 / (3 * 3) = %.2lf\n",g);
	printf("The calculation is: 22 / 3* 3 = %.2lf\n",h);
	printf("The calculation is: (22.0 / 3) * 3.0 = %.2lf\n", i);
	printf("The calculation is: 22.0 / ( 3* 3.0) = %d\n",j);
	printf("The calculation is: 22.0 / 3.0 * 3.0 = %.2lf\n", k);
	printf("\n");

	double circleArea, circumference= 23.567;
	circleArea= (circumference * circumference) / (4 * M_PI);
	printf("The area of a circle with a circumference of %lf is %lf units
squared\n", circumference, circleArea);

	const double FEET_TO_METER= .3048;
	printf("One foot = %.4lf , 14 feet = %.4lf meters\n", FEET_TO_METER,
14.0 * FEET_TO_METER );

	double Far= 76.0;
	printf("76 degrees F = %.2lf degrees C", (Far-32.0)/1.8 );




	return 0;
}
```

## Problems:

c) The variable c is defined as a double, the calculation being done involves integer division, the remainder of the division is not shown.

g) The variable g is defined as a double, the calculation being done involves integer division, the remainder of the division is not shown.

h) The variable h is defined as a double, the calculation being done involves integer division, the remainder of the division is not shown.

j) The variable j is defined as an integer, the calculation being done will result in a remainder, which will be cut-off when put into the variable of type integer.

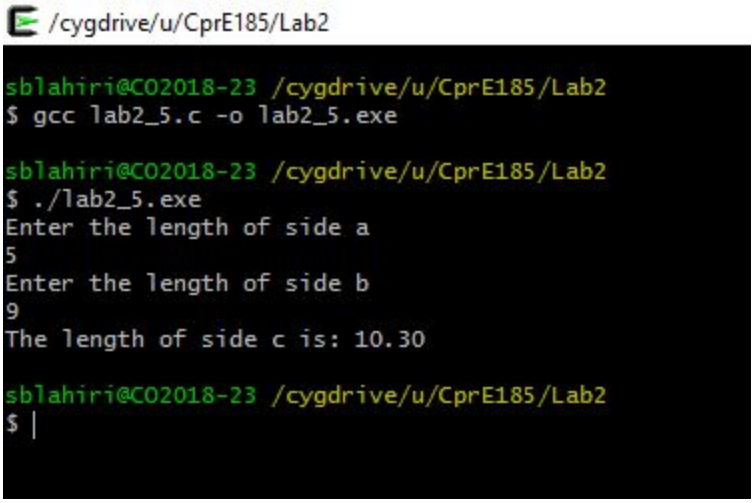
Text from Text File:

The calculation is: 6427+ 1725 = 8152
The calculation is: (6971 * 3925) - 95 = 27361080
The calculation is: 79+12 / 5 = 81.00
The calculation is: 3640.0 / 107.9 = 33.73
The calculation is: (22 / 3) * 3 = 21
The calculation is: 22 / (3 * 3) = 2
The calculation is: 22 / (3 * 3) = 2.00
The calculation is: 22 / 3* 3 = 0.00
The calculation is: (22.0 / 3) * 3.0 = 22.00
The calculation is: 22.0 / ( 3* 3.0) = 2
The calculation is: 22.0 / 3.0 * 3.0 = 22.00

The area of a circle with a circumference of 23.567000 is 44.197605 units squared
One foot = 0.3048 , 14 feet = 4.2672 meters
76 degrees F = 24.44 degrees C

# Problem 5

## Output:




## Source Code:

```c
#include <stdio.h>
#include <math.h>
int main()
{
    double a, b, c;
    double filler;
    /* Put your code after this line */
      printf("Enter the length of side a\n");
      scanf("%lf", &a);
      printf("Enter the length of side b\n");
      scanf("%lf", &b);



    /*  This next line will calculate the square root of whatever value is
        inside the parenthesis and assigns it to the variable filler. */
    filler = sqrt(pow(a,2)+ pow(b,2));
      c = filler;
```

```
        printf("The length of side c is: %.2lf\n", c);


    return 0;

}
```