Name: _____

Introduction to C++

Problems to do in Lab. Do not report this.

Problem 1. Average Rainfall

Write a program that calculates the average rainfall for three months. The program should ask the user to enter the name of each month, such as June or July, and the amount of rain (in inches) that fell each month. The program should display a message similar to the following:

```
The average rainfall for June, July, and August is 6.72 inches.
```

Problem 2. Box Office

A movie theater only keeps a percentage of the revenue earned from ticket sales. The remainder goes to the movie distributor. Write a program that calculates a theater's gross and net box office profit for a night. The program should ask for the movie's name and how many adult and child tickets were sold. (An adult ticket is $10.00 and a child's ticket is $6.00.) It should display a report similar to

```
Movie Name:                          "Wheels of Fury"
Adult Tickets Sold:                  382
Child Tickets Sold:                  127
Gross Box Office Profit:             $ 4582.00
Net Box Office Profit:               $ 916.40
Amount Paid to Distributor:          $ 3665.60
```

NOTE: Assume the theater keeps 20 percent of the gross box office profit.

To be reported on canvas. Create a PDF. Include screenshots of code and execution. Include copy-pasteable text of code. Be careful with variable names and indentation. You must use the templates.

Problem 3. How many widgets?

The Yukon Widget Company manufactures widgets that weigh 13.5 pounds each. Write a program that calculates how many widgets are stacked on a pallet, based on the total weight of the pallet. The program should ask the user how much the pallet weighs by itself and with the widgets stacked on it. It should then calculate and display the number of widgets stacked on the pallet.

USE THE NEXT TEMPLATE (MANDATORY):

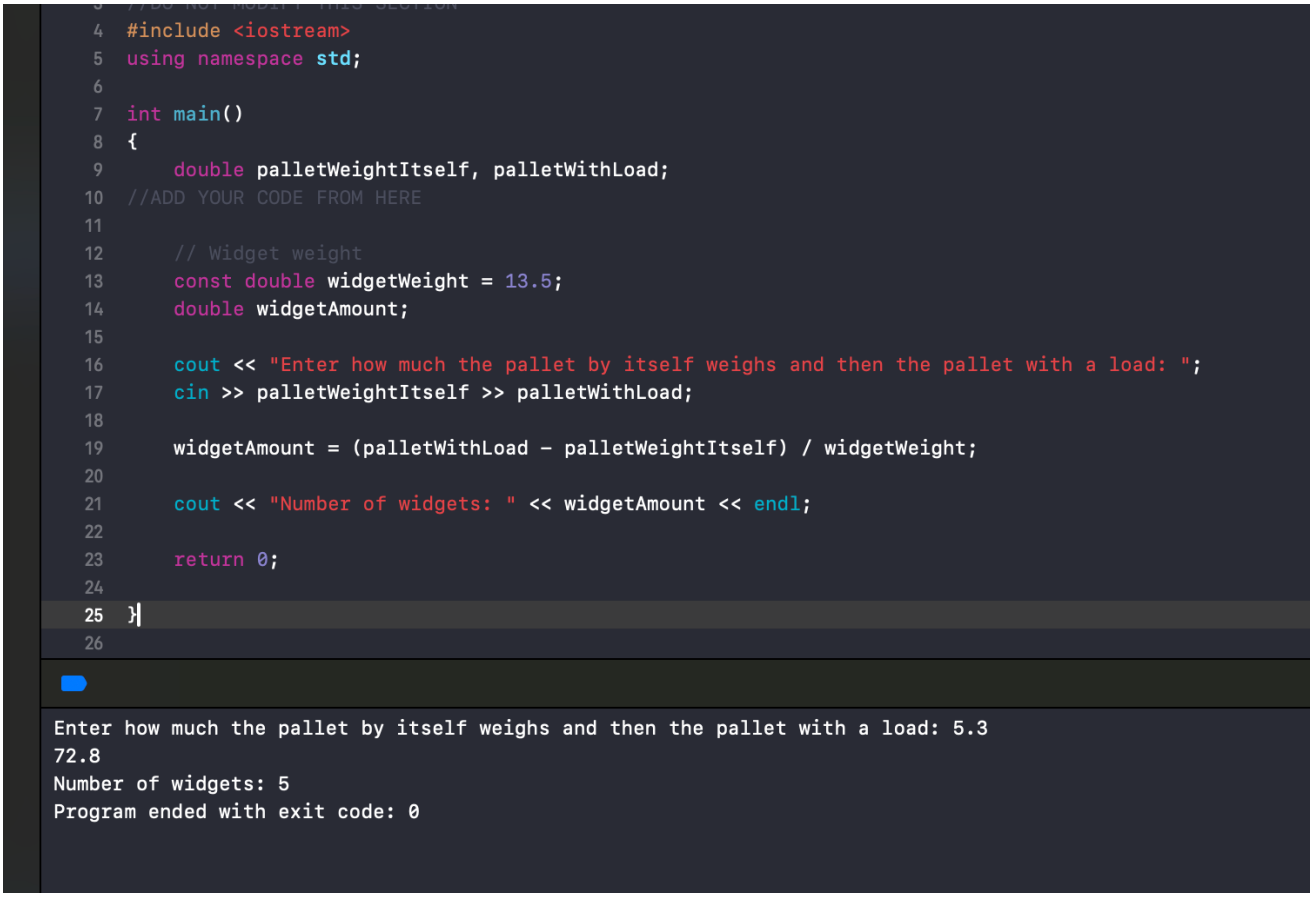
```
//DO NOT MODIFY THIS SECTION
#include <iostream>
using namespace std;
```

```
int main()
{
    double palletWeightItself, palletWithLoad;
//ADD YOUR CODE FROM HERE


}
```

Example of execution:

```
Enter pallet weight and weight with load: 5.3 72.8
Number of widgets: 5
```



```
#include <iostream>
using namespace std;

int main()
{
    double palletWeightItself, palletWithLoad;
//ADD YOUR CODE FROM HERE

    // Widget weight
    const double widgetWeight = 13.5;
    double widgetAmount;

    cout << "Enter how much the pallet by itself weighs and then the pallet with a load: ";
    cin >> palletWeightItself >> palletWithLoad;

    widgetAmount = (palletWithLoad - palletWeightItself) / widgetWeight;

    cout << "Number of widgets: " << widgetAmount << endl;

    return 0;

}
```

```
Enter how much the pallet by itself weighs and then the pallet with a load: 5.3
72.8
Number of widgets: 5
Program ended with exit code: 0
```

#include <iostream>

using namespace std;

int main()

{

```
   double palletWeightItself, palletWithLoad;
//ADD YOUR CODE FROM HERE


   // Widget weight
   const double widgetWeight = 13.5;
   double widgetAmount;


   cout << "Enter how much the pallet by itself weighs and then the pallet with a load: ";
   cin >> palletWeightItself >> palletWithLoad;


   widgetAmount = (palletWithLoad - palletWeightItself) / widgetWeight;


   cout << "Number of widgets: " << widgetAmount << endl;


   return 0;


}
```

Problem 4. Cookies Calories

A bag of cookies holds 30 cookies. The calorie information on the bag claims that there are 10 “servings” in the bag and that a serving equals 300 calories. Write a program that asks the user to input how many cookies he or she actually ate and then reports how many total calories were consumed.

USE THE NEXT TEMPLATE (MANDATORY)

```
//DO NOT MODIFY THIS SECTION
#include <iostream>
using namespace std;
int main()
{
   int bagCapacity=30, servings=10, servingCalories=300;
```

```
   int nCookies, consumedCalories;
//ADD YOUR CODE FROM HERE




}
```

```
#include <iostream>
using namespace std;
int main()
{
   int bagCapacity=30, servings=10, servingCalories=300;
   int nCookies, consumedCalories;
//ADD YOUR CODE FROM HERE

    //User input of cookies eaten
    cout << "Enter how many cookies you ate: ";
    cin >> nCookies;

    //Find the calories per cookie
    //Cookies serving size is 3 cookies per serving, serving calories is 300
    consumedCalories = nCookies * ( servingCalories / (bagCapacity / servings));

    cout << "You ate " << consumedCalories << " calories" << endl;

    return 0;


}
```


```
#include <iostream>
using namespace std;
int main()
{
   int bagCapacity=30, servings=10, servingCalories=300;
   int nCookies, consumedCalories;
//ADD YOUR CODE FROM HERE

    //User input of cookies eaten
    cout << "Enter how many cookies you ate: ";
    cin >> nCookies;

    //Find the calories per cookie
    //Cookies serving size is 3 cookies per serving, serving
calories is 300
```

```
    consumedCalories = nCookies * ( servingCalories / (bagCapacity
/ servings));

    cout << "You ate " << consumedCalories << " calories" << endl;

    return 0;


}
```

Example of execution:

```
How many cookies did you eat? 5
You consumed 500 calories.
```