Name: _____

Introduction to C++

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 4. Math Tutor

Write a program that can be used as a math tutor for a young student. The program should display two random numbers (three digits) to be added, such as

```
 247
+129
----
```

The program should then pause while the student works on the problem. When the student is ready to check the answer, he or she can press a key and the program will display the correct solution:

```
 247
+129
----
 376
```

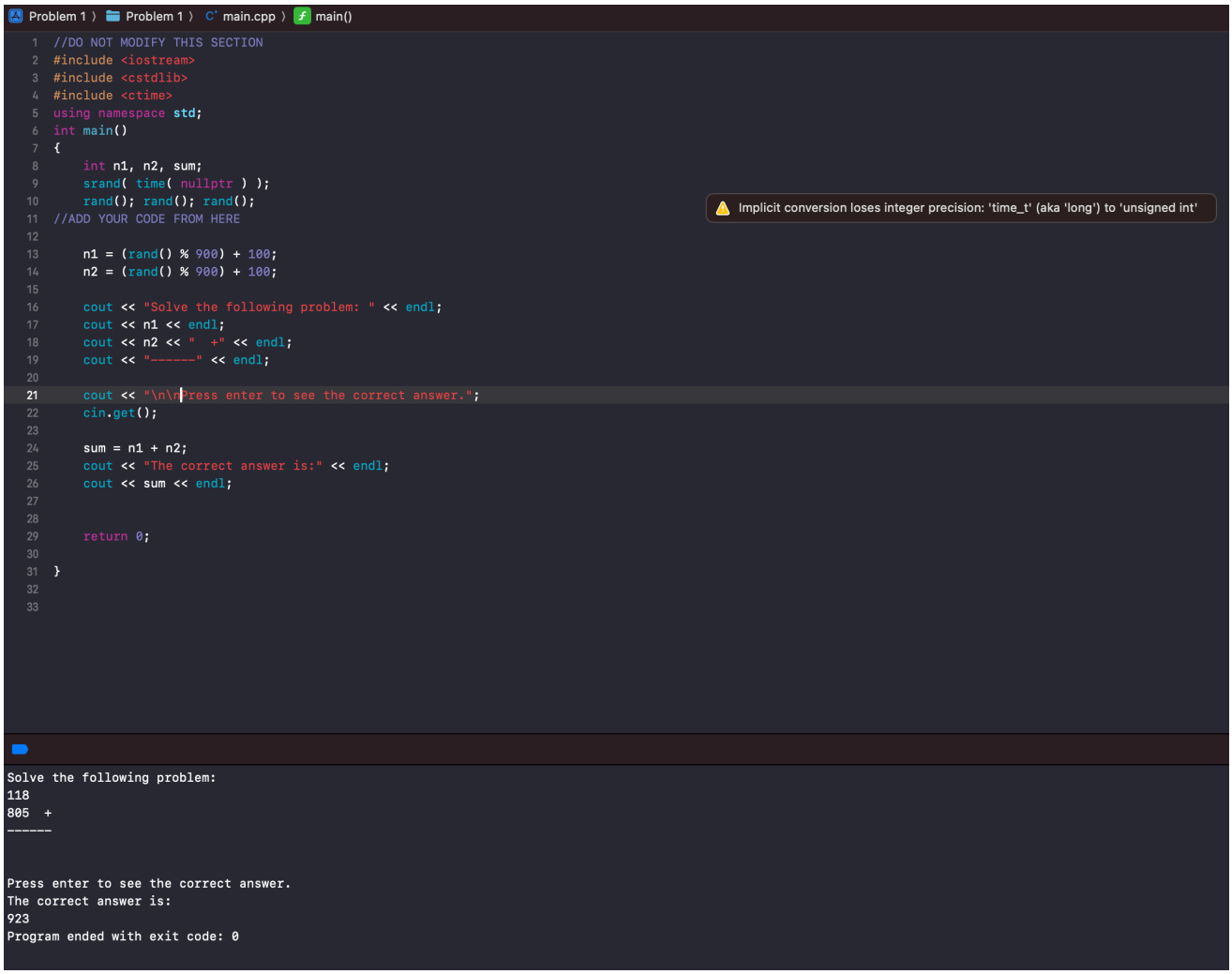
How do you get a number with three digits? Maybe by getting a random number between 0 and 899 and adding 100.
How do you get a number between 0 and 899? What about applying module 900?

USE THE NEXT TEMPLATE (MANDATORY):

```
//DO NOT MODIFY THIS SECTION
#include <iostream>
#include <cstdlib>
#include <ctime>
using namespace std;
int main()
{
    int n1, n2, sum;
    srand( time( nullptr ) );
    rand(); rand(); rand();
//ADD YOUR CODE FROM HERE



}
```




```
//DO NOT MODIFY THIS SECTION
#include <iostream>
#include <cstdlib>
#include <ctime>
using namespace std;
int main()
{
    int n1, n2, sum;
    srand( time( nullptr ) );
```

```
    rand(); rand(); rand();
//ADD YOUR CODE FROM HERE


    n1 = (rand() % 900) + 100;
    n2 = (rand() % 900) + 100;


    cout << "Solve the following problem: " << endl;
    cout << n1 << endl;
    cout << n2 << "  +" << endl;
    cout << "------" << endl;


    cout << "\n\nPress enter to see the correct answer.";
    cin.get();


    sum = n1 + n2;
    cout << "The correct answer is:" << endl;
    cout << sum << endl;



    return 0;

}
```

Problem 5. Book Club Points

Serendipity Booksellers has a book club that awards points to its customers based on the number of books purchased each month. The points are awarded as follows:

- If a customer purchases 0 books, he or she earns 0 points.
- If a customer purchases 1 book, he or she earns 5 points.
- If a customer purchases 2 books, he or she earns 12 points.
- If a customer purchases 3 books, he or she earns 18 points.
- If a customer purchases 4 or more books, he or she earns 25 points.

Write a program that asks the user to enter the number of books that he or she has purchased this month and then displays the number of points awarded.

USE THE NEXT TEMPLATE (MANDATORY)

```
//DO NOT MODIFY THIS SECTION
#include <iostream>
using namespace std;
int main()
{
   int books;
   cout << "How many books the customer purchased this month? ";
   cin >> books;
//ADD YOUR CODE FROM HERE



}
```

```cpp
//DO NOT MODIFY THIS SECTION
#include <iostream>
using namespace std;
int main()
{
   int books;
   cout << "How many books the customer purchased this month? ";
   cin >> books;
//ADD YOUR CODE FROM HERE
   switch(books)
   {

       case 0:
           cout << "No points awarded" << endl;
           break;
       case 1:
           cout << "5 points awarded" << endl;
           break;
       case 2:
           cout << "12 points awarded" << endl;
           break;
       case 3:
           cout << "18 points awarded" << endl;
           break;
       default:
           if(books >= 4)
           {
               cout << "25 points awarded" << endl;
           }
           else
           {
               cout << "Invalid book number." << endl;
           }
   }
    return 0;

}
```

```
How many books the customer purchased this month? 10
25 points awarded
Program ended with exit code: 0
```

//DO NOT MODIFY THIS SECTION
#include <iostream>
using namespace std;
int main()
{
  int books;
  cout << "How many books the customer purchased this month? ";
  cin >> books;
//ADD YOUR CODE FROM HERE
  switch(books)

```
  {

     case 0:
        cout << "No points awarded" << endl;
        break;
     case 1:
        cout << "5 points awarded" << endl;
        break;
     case 2:
        cout << "12 points awarded" << endl;
        break;
     case 3:
        cout << "18 points awarded" << endl;
        break;
     default:
        if(books >= 4)
        {
           cout << "25 points awarded" << endl;
        }
        else
        {
           cout << "Invalid book number." << endl;
        }
  }
   return 0;

}
```