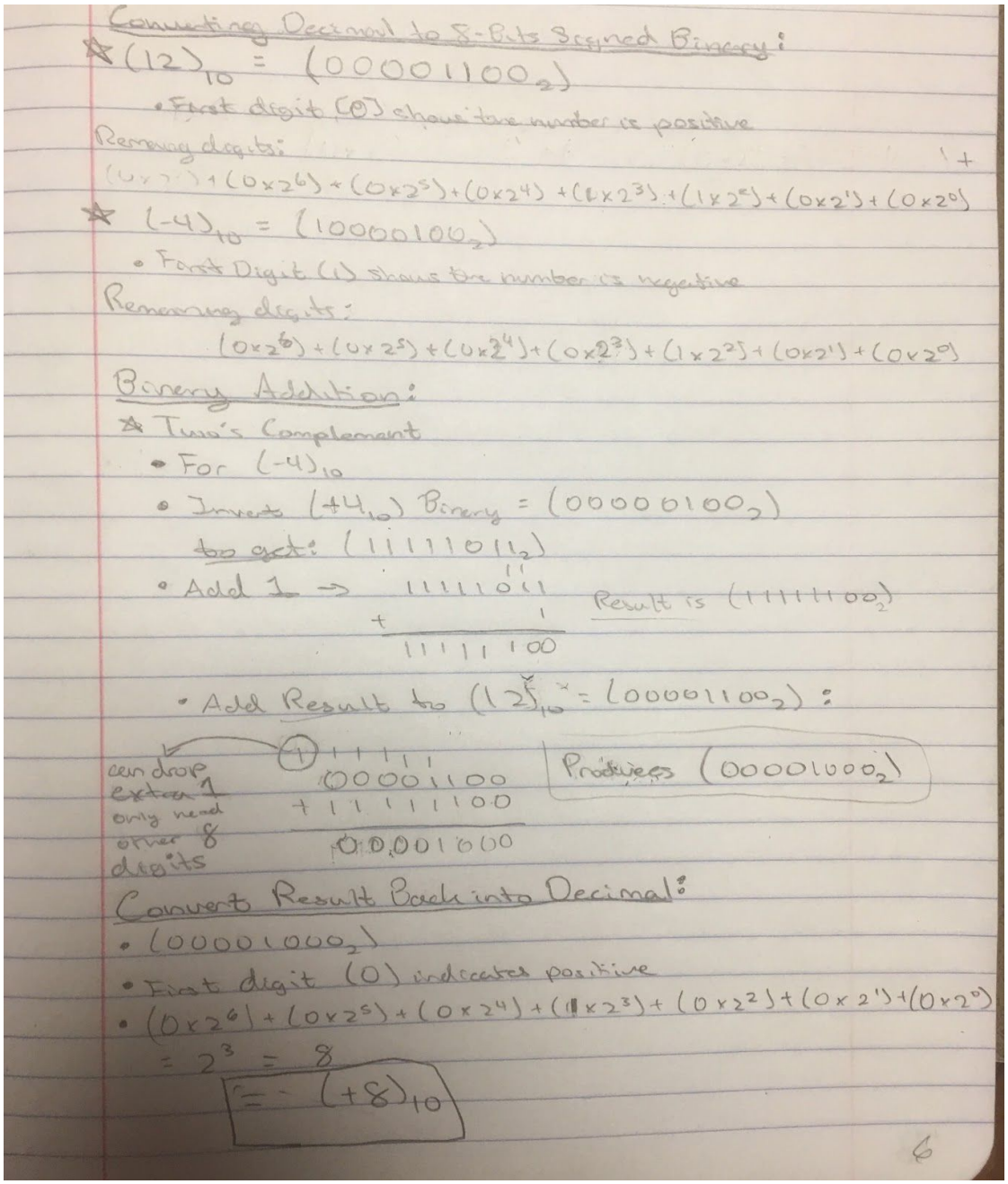
Problem 1.

Convert the decimal numbers (12)10 and (-4)10 into 8-bits binary signed integers (two's complement), perform the binary addition and convert the result back to a decimal number. You may type your answers in a text editor or MS Word. Or you may also write your answers on paper, take a picture and include it in your write up.



Problem 2. Short answers

(a)Find all syntactic errors in the following code (hint: if you are not sure whether you find all of them, try to compile your code and run it).

The red indicates changes I made to the code:

```
#include <iostream>
(Space right here)
using namespace std;

int main() {

	int i=1;
	int j=2;
	cout << (i and j) << endl;
	double grade = 90.0;
	cout << grade << endl;

	return 0;

}
```

(b) What is the output of the following block of C ++ code?

```
int i = 5, j = 6;
cout << i << " " << j <<endl;
i = j;
cout << i << " " << j<< endl;
```

Putting in the same code gave me:

5 6
6 6

(c) Here we have eight variable names, which are acceptable in C++?

```
Apple, 2nd_exam, unitPrice, sizeofstudent_ID,
test#1, apple(price), return
```

Acceptable Names: Apple, unitPrice, sizeofstudent_ID

d) What is the output of the following block of C ++ code?

```
double a = 5/2;
double b = 5.0/2;
int c = 5.0/2.0;
float d = float (5)/2;
float e = float(1/2);
cout << a <<" "<< b <<" "<<c;
cout <<" "<< d <<" "<< e <<endl;
```

Putting in the same code gave me:

2 2.5 2 2.5 0

(e) What is the output of the following block of C ++ code?

```
int a;
double b = 6.7;
a = b;
cout << a <<" "<< b << endl;
```

Putting in the same code gave me:

6 6.7

Problem 3.

Write a C++ program to compute the area and perimeter of a rectangle. The program should ask the user to enter the width and length of the rectangle from the keyboard (data type: double) and display the results on the screen.

(.cpp file is attached)

The Output:

```
student@student-VirtualBox:~/Desktop/Rectangle$ g++ -o PerimeterArea
WidthArea.cpp
student@student-VirtualBox:~/Desktop/Rectangle$ ./PerimeterAreaEnter

Width of the Rectangle = 3
Enter  Height of the Rectangle = 64
Area of Rectangle is 192
 Perimeter of rectangle is 134
```