Name:			
(as it would appear on official course roster)			
Umail address: @umail.ucsb.edu			section
Optional: name you wish to be called if different from name above.			
Optional: name of "homework buddy" (leaving this blank signifies "I worked alone"			

h05: Chapter 5: Call by value and call by reference

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ready?	assigned	due	points
true	Fri 04/27 09:00AM	Fri 05/04 11:59PM	26

You may collaborate on this homework with AT MOST one person, an optional "homework buddy".

MAY ONLY BE TURNED IN IN THE LECTURE/LAB LISTED ABOVE AS THE DUE DATE,
OR IF APPLICABLE, SUBMITTED ON GRADESCOPE. There is NO MAKEUP for missed assignments;
in place of that, we drop the three lowest scores (if you have zeros, those are the three lowest scores.)

Read Chapter 5.1 thru 5.4. Read the lecture slides for topics on binary arithmetic.
You don't need to turn this homework in. To earn credit for this homework,
complete the corresponding quiz on gauchospace AFTER you have completed the
pen and pencil version of the homework. The quiz will be available one day before
the due date indicated on the homework.

**PLEASE MARK YOUR HOMEWORK CLEARLY, REGARDLESS OF IF
YOU WRITE IT OUT IN INK OR PENCIL!
FOR BEST RESULTS, PRINT THIS PAGE AS A PDF, THEN PRINT THE
PDF**

Please:

- **No Staples**.
- **No Paperclips**.
- **No folded down corners**.

1.(3 pts) What happens if you forget the return statement in a void-function?

The function returns after the last line has been executed

2.(3 pts) Can you define a function in the body of another function? And can you call a function in the body of another function?

No, Yes

& Call by reference is used when we want to modify then actual parameters via the function

3.(2 pts) What is the difference between a call-by-reference function and a call-by-value function? As a programmer, when might you decide to use one over the other?

In a call by reference, the formal parameter of the function is an alias or nick name for the actual parameter passed in. In a call by reference the formal parameter is a copy

4.(4 pts) Write a void-function definition for a function called "zero_both" with 2 parameters, both which are variables of type int, and sets the value of both variables to 0. Describe if you picked this function to be a call-by-reference or a call-by-value AND WHY?

```
void zero_both (int &x, int &y) {
    x=0;
    y=0;
}
```

If x & y are not referenced the function will not have any effect on variables that are passed in

5.(2 pts) What is the value of the concepts of pre-condition and post-condition to programmers?

It makes the assumptions made on the inputs to functions & the expected behavior of function very clear.

6.(4 pts) What are two important testing strategies covered in the book?

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7.(6 pts) What is the output of the program below (write it in the space to the right)?

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

void phooey(int &z) {
  z = z / 2;
  cout << "z=" << z << endl;
}

int main() {
  int b = 3;
  phooey(b);
  cout << "b=" << b << endl;
  return 0;
}
```

z=1
b=1

8.(2 pts) What is the meaning of the ampersand character (&) in the code above?

The & is used to declare a reference 'z'