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"

h06: Chapter 7 and 10: Pointers

ready?	assigned	due	points
true	Thu 10/31 09:00AM	Fri 08/02 11:59PM	20

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

UPLOAD A PDF OF YOUR ANSWERS TO GRADESCOPE BEFORE THE DUE DATE. There is NO MAKEUP for missed assignments;

Read Chapter 7.1 - 7.2 up to page 397. Also read this handout on Pointers and Memory: http://cslibrary.stanford.edu/102/PointersAndMemory.pdf Upload your answers as a pdf to the h06 assignment on gradescope.

PLEASE MARK YOUR HOMEWORK CLEARLY, REGARDLESS OF IF YOU WRITE IT OUT IN INK OR PENCIL!

Please:

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

1.(2 pts) What is the output of the following code? If there's an error that will not allow an output, point it out. Briefly justify your answer.

```cpp
int arr[5];
for (int i = 0; i < 5; i++) {
  if (i < 3) arr[i] = 'a';
  else arr[i] = 'z';
  cout << arr[i] << endl;  }
```

2.(2 pts) What is the output of the following code? If there's an error that will not allow an output, point it out.

```cpp
int arr[7] = {5};
for (int i = 0; i < 7; i++)
  cout << arr[i] + i <<" ";
```

3.(2 pts) What is the output of the following code? If there's an error that will not allow an output, point it out.

```cpp
int codes[] = {44, 66, 83, 973, -977};
for (int count : codes) {
  if ( (count/2) < 50 )
    cout << count << endl;
  else cout << "invalid" << endl; }
```

4.(8 pts) Write the definition of a function named 'reverse' that takes two parameters: an integer array and the number of elements of the array. The function should reverse the order of elements of the array. The function should not return anything. See below for an example of expected outcome when the reverse function is called:

```cpp
int nums[] = {10,20,30,40,50};
reverse(nums, 5);// The order of elements should be reversed after this
for(int i=0;i<5;i++)
    cout<< nums[i]<<" "
```

The output of the above code should be: 50 40 30 20 10

5.(2 pts) List two reasons why you might choose to pass parameters to a function by address or reference, rather than by value in your C++ programs.

6.(4 pts) Draw a pointer diagram to demonstrate how the state of memory changes as the following code is executed. Cross out old values/arrows and draw new ones. Is this program likely to result in a segmentation fault? If so, why?

```
int num = 10, *ptr1 = &num, *ptr2=0;
if (ptr2) ptr1 = ptr2;
else if(ptr1) ptr2 = ptr1;
(*ptr1)++;
```