CSCI 1370

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The point of these exercises is to allow you to evaluate whether you have learned the material from the past week, and to direct you in additional studying outside of class. These are exactly the types of questions that will show up on your tests. My advice is to figure it out on paper, using your book or other resources, and then verify your answer by running the code. If you really want to learn the material, try variations and make sure you understand why the behavior changes the way it does.

Review exercises: arrays

1. Declare an array of 10 doubles and assign the numbers 4.5, 2, 0, -20.4, 4.76 to the first 5 elements.

   ```
   Answer:
   double anArray[10];

   anArray[0] = 4.5;
   anArray[1] = 2;
   anArray[2] = 0;
   anArray[3] = -20.4;
   anArray[4] = 4.76;
   ```

2. Continuing with the array you declared in question 1, assign the 7th element of the array the value from the 1st element.

   ```
   Answer:
   anArray[6] = anArray[0];
   ```

3. Continuing with the array you declared in question 1, use a for loop to copy those first 5 elements into the last 5 elements (so the array should hold 4.5, 2, 0, -20.4, 4.76, 4.5, 2, 0, -20.4, 4.76 when you are done).

   ```
   Answer:
   int i;
   for(i=0; i<5; i++ )
   {
       anArray[i+5] = anArray[i];
   }
   ```

4. What are the values stored in the array `list` after the following C++ code executes?

   ```
   int i;
   int list[6];

   list[0] = 0;
   for( i=1;i<6;i++ )
   {
           list[i] = i + 5;
       if( i > 2 )
       {
   ```

```
            list[i] = list[i] - list[i - 1];
        }
    }
Answer: 0 6 7 1 8 2
```

5. Declare an array of 10 strings. Prompt the user to input 10 words and use a loop to store those words in that array.

```
Answer:
string this_array[10];
cout << "Please enter 10 words";
for( i=0; i<10; i++ )
{
    cin >> this_array[i];
}
```

6. What are the values stored in the array `list` after the following C++ code executes?
```
int i;
int list[7] = { 40, 20, 30, 60, 70, 30, 10 };

for( i=1;i<5;i++ )
{
    list[i] = list[i-1] + list[i+2];
}
Answer: 40 100 170 200 210 30 10
```

7. Given the function:

```
void mult_array( int arr[], int size, int x )
{
    int i;
    for( i=0; i<size; i++ )
    {
        arr[i] = arr[i] * x;
    }
}
```

What are the values stored in the array `ints` after the following C++ code executes?

```
int ints[5] = { 5, 1, 3, 2, 6 };
mult_array( ints, 5, 2);

Answer: 10 2 6 4 12
```

8. Given the function:

```
void shift_array( int arr[], int size )
{
    int i;
    for( i=0; i<size-1; i++ )
    {
        arr[i] = arr[i+1];
    }
```

```
}
```

What are the values stored in the array `ints` after the following C++ code executes?

```cpp
int ints[5] = { 1, 2, 3, 4, 5 };
shift_array( ints, 5 );
```

Answer: 2 3 4 5 5

9. Given an array of ints named `numbers` and an integer `size` that holds the size of the array (you don't have to declare those variables or give them values, they already have them), write a for loop that prints out only the values in the array that are greater than 10.

```cpp
Answer:
for( i=0; i<size; i++ )
{
    if( numbers[i] > 10 )
    {
        cout << numbers[i];
    }
}
```

10. Given the following 2 arrays, write C++ statements that copy the contents of the first array in the second array *backwards*. So the second array should contain 5 4 3 2 1 after your code runs.

```cpp
double a1[5] = { 1, 2, 3, 4, 5 };
double a2[5];

Answer:
int i;
for(i=0; i<5; i++ )
{
    a2[4-i] = a1[i];
}
```