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Checked by groups 4 and 1

Arrays Worksheet II

1. What is the output of the following program?

```
#include <iostream>
int main()
{
   int a[100], b[100], j, m;
   int suma = 0, sumb = 0, sumdiff = 0;
   cin >> m;
   for (j = 0 ; j < m ; j++)
   {
      cin >> a[j] >> b[j];
      suma = suma + a[j];
      sumb += b[j];
      sumdiff = sumdiff + (a[j] - b[j]);
   }
   for (j = m - 1 ; j >= 0 ; j--)
      cout << a[j] << "  " << b[j] << "  " << a[j] - b[j] << endl;
   cout << suma << "  " << sumb << "  " << sumdiff << endl;
}
DATA:
5
11 15
19 14
4 2
17 6
1 3
```

1 3 -2
17 6 11
4 2 2
19 14 5
11 15 -4
52 40 12

2. Given: `int h = 6, p = 2, m = 3;`
   `int values[7];`
   Suppose values contains: -4 0 2 6 -2 -1 14
   Show the contents of the array values after:

```
for (; m <=5; m++)
   values[m] = values[h] + values[p] * values[m];
```

values = [-4, 0, 2, 26, 10, 12, 14]

3. Given the declarations:

```
int sample[8], i, k;
```

show the contents of the array sample after the following code is executed. Use a question mark to indicate any garbage values in the array.

```
for (k = 0 ; k < 8 ; k++)
   if (k % 2)
      sample[k] = 1;
```

sample = [“, 1, “, 1, “, 1, “]

4. What is the error in the following program segment?

```
int main()
{
   int i, count[10];
   cout << "please enter 10 numbers:  ";
   for (i = 1; i <= 10; i++)
      cin >> count[i];
}
```

In the for loop, the indexing is shifted up one and therefore will access an invalid index at i = 10. The for loop statement should be

```
for (i = 0; i < 10; i++)
      cin >> count[i];
```

5. Write the statements to multiply every element of an array of ints (of size 50) by 2.

```
for (int i = 0; i < 50; ++i)
      array[i] *= 2;
```

6. Write the statements to add up those elements of an array of ints (of size 25) which have an even subscript.

```
int accumulator = 0;
for (int i = 0; i < 25; ++i)
      accumulator += array[i] * ((i + 1) % 2);
```

7. Write the statements to add up those elements of an array of ints (of size 25) which have an even value.

```
int accumulator = 0;
for (int i = 0; i < 25; ++i)
      accumulator += array[i] * ((array[i] + 1) % 2);
```

8. What will the following program segment print?

```
int main()
{
   int nums[10];
   int i;
   for (i = 9 ; i >= 0 ; i--)
   {
      nums[i] = 5 * (i + 1);
      cout << nums[i] << "  ";
   }
   cout << endl;
   for (i = 0 ; i < 9 ; i++)
      cout << nums[i] << "  ";
   cout << endl;
   for (i = 0 ; i < 9 ; i++)
      nums[i+1] = nums[i];
   for (i = 0 ; i < 9 ; i++)
      cout << nums[i] << "   ";
   cout << endl;
}
```

```
50  45  40  35  30  25  20  15  10  5
5  10  15  20  25  30  35  40  45
5   5   5   5   5   5   5   5   5
```

9. What will the following program segment print?

```
int main()
{
   int nums[10];
   int i;
   for (i = 9 ; i >= 0 ; i--)
   {
      nums[i] = 5 * (i + 1);
      cout << nums[i] << "  ";
   }
   cout << endl;
   for (i = 0 ; i < 9 ; i++)
      cout << nums[i] << "  ";
   cout << endl;
   for (i = 8 ; i >= 0 ; i--)
      nums[i+1] = nums[i];
   for (i = 0 ; i < 9 ; i++)
      cout << nums[i] << "   ";
   cout << endl;
}
```

```
50  45  40  35  30  25  20  15  10  5
5  10  15  20  25  30  35  40  45
5   5   10   15   20   25   30   35   40
```

10. Given: int temps[50];
    Write the statements to print "yes" if any element of the array temps contains the value 100.

```
for (int i = 0; i < 50; ++i) {
       if (temps[i] == 100) {
              cout << “yes”;
              break;
       }
}
```

11. Given: int temps[50];
    Write the statements to set the variable **found** to true if any element of the array temps contains the value 100. If not, the variable **found** should be false.

```
for (int i = 0; i < 50; ++i) {
       if ((found = (temps[i] == 100)))
              break;
}
```