Name (print): 

1. (1 point) (a) Have you checked your final exam schedule for conflicts with the scheduled CS170 Final Exam Block time?

(a) __________

(b) If you answered no, when will you check your schedule for conflicts? *Hint: The correct answer is “immediately.”*

(b) __________

2. Prof Summet has written the following method to find and return the maximum value in an array (which contains at least 1 value). However, her code has a logic error in it.

```java
1  public static int maxValue(int[] a) {
2      int max = 0;
3      for (int i = 0; i < a.length; i++) {
4          if (a[i] > max) {
5              max = a[i];
6          }
7      } 
8      return max;
9  }
```

(a) (2 points) Give an example array of 4 elements for which Prof. Summet’s code would return a correct answer.

```plaintext
[_, _, _, _]
```

**Solution:** Any array with a number greater than 0 in it would work correctly.

(b) (2 points) Give an example array of 4 elements for which Prof. Summet’s code would return an incorrect answer.

```plaintext
[_, _, _, _]
```

**Solution:** Any array of all negative numbers would return the incorrect answer (0).

(c) (3 points) Rewrite a single line of code which would fix Prof. Summet’s error.
Solution: Line 2. Should be `int max = a[0];` (or any other element in the array) and the code would work as expected.
3. (7 points) Perform an insertion sort on the array by drawing the array as each value is sorted.

Below is the code for an insertion sort if you need it. Draw the array at the point indicated by the comment in the code. The initial state of the array has been done for you. Use only as many answer blanks as you need.

```java
int[] a = {3, 10, 6, 5, 9, 2, 7}

for(int i = 1; i < a.length; i++) {
    int currentElement = a[i];
    int k;
    for (k = i-1; k >= 0 && a[k] > currentElement; k--) {
        a[k+1] = a[k];
    }
    a[k+1] = currentElement;

    //Draw the array at this point. Exactly one (more) element
    //will be sorted.
}
```

<table>
<thead>
<tr>
<th>3</th>
<th>10</th>
<th>6</th>
<th>5</th>
<th>9</th>
<th>2</th>
<th>7</th>
</tr>
</thead>
</table>
**Solution:** initial array given (above) and then:

3, 10, 6, 5, 9, 2, 7
3, 6, 10, 5, 9, 2, 7
3, 5, 6, 10, 9, 2, 7
3, 5, 6, 9, 10, 2, 7
2, 3, 5, 6, 9, 10, 7
2, 3, 5, 6, 7, 9, 10

Most common error: leaving out steps which did not result in a change to the array.