This quiz has 3 questions, for a total of 10 points.

1. **4 points** What is the output of the following Python program?

```python
A = []
A.append(1)
A.append((2,3))
print(A)
print(1 in A)
print(2 in A)
A[1] = 2
print(A)
```

**Solution:**

```
[1, (2, 3)]
True
False
[1, 2]
```

Grading rubric: after the appends, A is `[1, (2, 3)]` (1 point). So 1 is in A (1 point) but 2 is not (1 point). The assignment to `A[1]` causes A to become `[1, 2]` (1 point).

2. **3 points** What code needs to be filled into the blanks labeled (a), (b), and (c) to finish this algorithm that rotates the elements in a non-empty array by one to the right?

```python
def rotate_1_save_n_shift(A):
    last = A[len(A)-1]
    i = ___(a)___
    while ___(b)___:
        A[i] = A[i-1]
        i = ___(c)___
    A[0] = last
```

**Solution:** Grading rubric: 1 point per blank.

- a) `len(A) - 1`
- b) `i != 0`
- c) `i - 1`

3. **3 points** Suppose the Flood-It! board is in the below configuration.

How many tiles are in the `flooded_list`?

If the player chooses yellow, how many tiles will be added to the `flooded_list`?
Solution: There are 4 tiles in the `flooded_list` (1 point). Choosing yellow will add 3 tiles to the `flooded_list` (1 point for the directly adjacent tiles and 1 point of the tiles 2 or more away).