Name _____

Section _____

Roll # _____

6 points.

1. (1 point) While trying to compute the factorial of 10, this program printed 0. Fix the error. Your program should still use a range based for loop.

```
f = 1
for i in range(11):
    f = f * i
print(f)
```

2. (1 point) The following was written to print the largest positive integer that is at most the positive square root of x. If x is 50, for example, it prints 7 correctly. It does not work correctly on all inputs. Explain the mistake and fix the error.

```
s = 0
while s*s < x:
    s = s + 1
print(s-1)
```

3. (1 point) The following program was intended to print "Yes." when *some* element in xs is greater than *all* elements in ys. Write two lists xs and ys where this program makes a mistake. Fix this program. Do not use any Python built-in functions.

```
for x in xs:
    for y in ys:
        if x > y:
            print("Yes.")
```

4. (1 point) We want to write code so that an element in position i > 0 of the list xs is modified to xs[i] − xs[i−1] (i.e., subtract the previous element from the list). What mistake does the following program make? Write the correct version.

```
for i in range(1, len(xs)):
    xs[i] = xs[i] − xs[i−1]
```

5. (2 points) We want to construct a list of lists to store a 3x3 matrix where the entry at position (i, j) has value $i + j$ (Here, the indices are starting from 0). The following program makes a mistake. Explain the mistake and fix it.

```
row = [0, 0, 0]
mat = [row, row, row]
for i in range(3):
    for j in range(3):
        mat[i][j] = i + j
```