

Lab 4

Self check #1

a)

```
for(int i=0; i<n; i++) (runs n times)
```

```
for(int j=0; j<n; j++) (runs n times)
```

```
System.out.println(i + " " + j); (runs  $n^2$  times)
```

★ Algorithm is $O(n^2)$ Prints n^2 times

b)

```
for(int i=0; i<n; i++) (runs n times)
```

```
for(int j=0; j<2; j++) (runs 2 times)
```

★ Algorithm is $O(2n) = O(n)$ Prints $2n$ times

c)

```
for(int i=0; i<n; i++) (runs n times)
```

```
for(int j=n-1; j>=i; j--) (runs  $n-1-i$  times)
```

★ Algorithm is $O(n^2 - n) = O(n^2)$ Prints $n^2 - n$ times

d)

```
for(int i=1; i<n; i++) (runs  $n-1$  times)
```

```
for(int j=0; j<i; j++) (runs  $i$  times)
```

```
if(j%i == 0)
```

```
System.out.println(i + " " + j);
```

★ Algorithm is $O(n^2)$ Prints $n^2 - n$ times