

EECS 3101 FALL '17: DESIGN AND ANALYSIS OF ALGORITHMS

Assignment 1

Weight: 4%, Due: Oct 2, in the drop box by 3:45 pm or in class by 4:10 pm

Notes:

1. The assignment can be handwritten or typed. It MUST be legible.
2. You must do this assignment individually.
3. Submit this assignment only if you have read and understood the policy on academic honesty on the course web page. If you have questions or concerns, please contact the instructor.
4. Use the dropbox near the EECS main office to submit your assignments, or bring them to class. No late submissions will be accepted. Please do not send files by email unless you have the instructor's permission to do so.

Problem 1

What is the value returned by the following function? Express your answer as a function of n and give, using $\Theta()$ -notation, the worst case running time.

```
PESKY( $n$ )
1   $r \leftarrow 1$ 
2  for  $i \leftarrow 1$  to  $n$ 
3    do for  $j \leftarrow 1$  to  $i$ 
4      do for  $k \leftarrow j$  to  $i + j$ 
5        do  $r \leftarrow 3r$ 
6  return  $r$ 
```

Problem 2

What is the value returned by the following function? Express your answer as a function of n . Give using $\Theta()$ notation the worst-case running time.

```
EVAL( $n$ )
1   $v \leftarrow 0$ 
2  for  $i \leftarrow 1$  to  $n$ 
3    do for  $j \leftarrow i + 1$  to  $i + n$ 
4      do  $v \leftarrow v + j$ 
5  return  $v$ 
```