Topic/Title:

Big O Simplification and Rules

Keywords/Questions:

Notes:

Rule 1: Always care about the worst Case scenario

Rule 2: Remove Constants*1

*1 We care about how the line moves as our inputs increase

Rule 3: Different inputs should have different variables.*2

*2 O(m+n), O(m*n) → for nested steps
↳ Steps in order

Rule 4: Drop non-dominant Terms*3

*3 We care about the most important term

Summary:

Rule 1:

What is the worst case in a loop? How far do we take the algorithm? What is the best?

Rule 2:

$O(n^2 + 2) \Rightarrow O(n^2)$

Rule 3:

```
function example(box){
    one loop
    one loop
}
```

$\Rightarrow O(a + b)$

```
function example2(box){
    one loop{
        next loop}}
}
```

$\Rightarrow O(a \cdot b)$

Rule 4:

$O(n + n^2) \Rightarrow O(n^2)$