Darryl Green
CIS 2353
Baugh
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Project 2 Big O Questions

3.1) To find the constants c and N of $T(n) = 5n^2 + 2n + 3$ that the big O of $T(n)$ is n^2

$5n^2 + 2n + 3 \leq 5n^2 + 2n^2 + 3n^2$

$5n^2 + 2n + 3 \leq 10n^2$ $C = 10, N = 1$

$5(1)^2 + 2(1) + 3 = 10 \Rightarrow C = 10$

3.2) Find the Big O of $T(n) = 2n^3 + 10n^3 + n + 6$.
Justify your answer by finding constants c and N

$2n^3 + 10n^3 + n + 6 \leq 2n^3 + 10n^3 + n^3 + 6n^3$

$2n^3 + 10n^3 + n + 6 \leq 19n^3$

$C = 19$

$N = 1$ because...

$2(1)^3 + 10(1)^3 + 1 + 6 = 19 \Rightarrow c = 19$

3.3)
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for(int i=0; i<n; i++) (runs n times so complexity O(n))
{
    for(int j=0; j<n; j++) (O(n^2) because runs for every
    {                        value of i and j)
        System.out.println("Eat big or go home!");
    } (complexity O(n^2))
} Total complexity is O(n^2)
```