1. Prove 7n2 + 4n + 1 is O(n2)
2. Prove 7n6 + 8n5 is O(n6)
3. Prove (n+1)5 is O(n5)
4. Prove nis O(nlog(n))
5. Prove nlog(n) is (n)
6. The number of operations executed by algorithm A is 192n5. The number of operations executed by algorithm B is 3n5\*2n. Determine no such that algorithm A is better than algorithm B for nno.
7. The number of operations executed by algorithm A is 25n3. The number of operations executed by algorithm B is 5n3\*log(n). Determine no such that algorithm A is better than algorithm B for nno.
8. **Give the big-Oh characterization in terms of n.**

**Input:** An array A storing n1of integers

**Output:** The sum of the prefix sums in A.

s ← A[0]

t ← s

for i ← 1 to n − 1 do

s ← s + A[i]

t ← t + s

return t

1. Given an n-element array X, Algorithm A calls Algorithm B on each element X[i]. The B Algorithm runs in O(i) time when it is called on element X[i]. What is the worse-case running time on Algorithm A?
2. Order the following functions by asymptotic growth (fastest to slowest) rate: 214, nlog(n), 200n, n7+n3+10, 9n + 10log(n), 6nlog(n) + 2n, 2n ,log(n), n2+10n, 2log(n)

Due September 6th at the beginning of class (no late assignments accepted)