6.4.7 Efficiency Practice

Checkpoint 1

What is the big O of $0.5N^3 - 27N$?

○ **O(N)**

○ **O(N³)**

○ **O(3ᴺ)**

○ **O(N²)**

Submit

Checkpoint 2

What is the big O of $5logN + 3NlogN + N$?

○ **O(logN)**

○ **O(NlogN)**

○ **O(N⁰·⁵)**

○ **O(N)**

Submit

Checkpoint 3

If on a given computer, a function that runs in O(N) takes 10 seconds to run on a list with 1000 values, roughly how long will it take to run on the same computer for a list with 5000 values?

○ **20 seconds**

○ **10 seconds**

○ **50 seconds**

○ **2500 seconds**

Submit

Checkpoint 4

If on a given computer, a function that runs in $O(N^2)$ takes 2 seconds to run on a list with 100 values, roughly how long will it take to run on the same computer for a list with 300 values?

○ **12 seconds**

○ **18 seconds**

○ **6 seconds**

○ **16 seconds**

Submit

Checkpoint 5

If on a given computer a function takes 5 seconds to run on a list with 100 values and 10 seconds to run on a list with 200 values, what would you expect the big-O of the function to be?

○ **O(log(N))**

○ **O(N**2)**

○ **O(1)**

○ **O(N)**

Submit

Checkpoint 6

Which of the following correctly orders the function famillies logN, NlogN, N, and $N^{0.5}$ from smallest to largest?

○ $N^{0.5}$, logN, N, NlogN

○ logN, N, $N^{0.5}$, NlogN

○ N, logN, $N^{0.5}$, NlogN

○ N, logN, NlogN, $N^{0.5}$

○ $N^{0.5}$, N, logN, NlogN

○ logN, $N^{0.5}$, N, NlogN

Submit

Checkpoint 7

What is the maximum number of indices that binary search would need to access when run on a list of length 64?

○ 4

○ 8

○ 6

○ 16

Submit

Checkpoint 8

What is the maximum number of indices that linear search would need to access when run on a list of length 64?

○ 32

○ 128

○ **64**

○ **16**

Submit

Checkpoint 9

If we want to search for a single element in an unsorted list, is it more efficient to use linear search, or sort the list using merge sort and then use binary search?

○ **Sort and then use binary search.**

○ **They have the same efficiency.**

○ **Linear search.**

Submit

Checkpoint 10

If we want to search for N different elements in an unsorted list of length N, is it more efficient to use linear search N times, or sort the list using merge sort and then use binary search N times?

○ **Sort and then use binary search.**

○ **They have the same efficiency.**

○ **Linear search.**

Submit

Continue