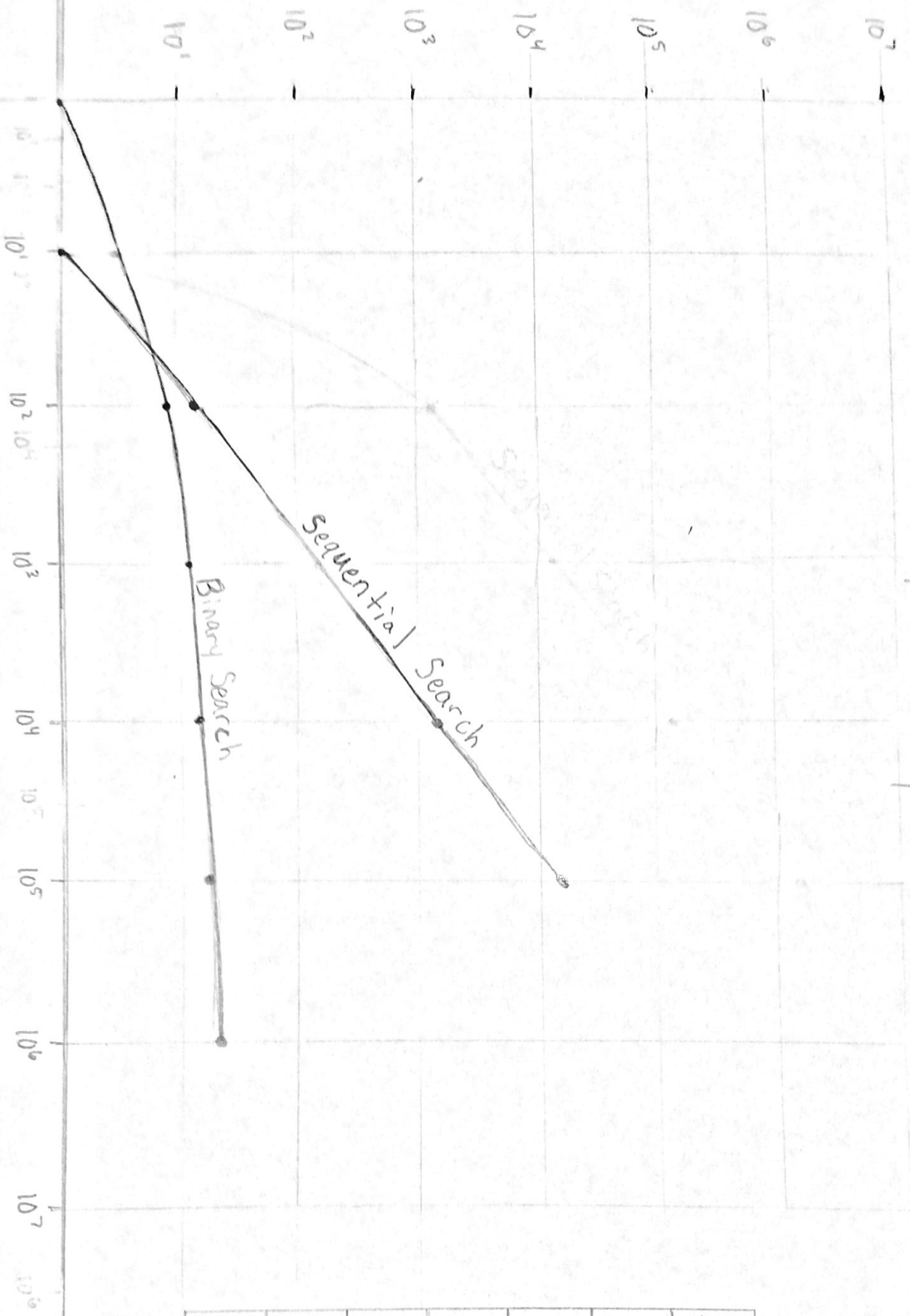In order to get a good spread on the graph, it was necessary to increase the number of searches of the loop. For each program, I needed a different number of searches, due to the obvious difference in time complexity of each type of search. The following data shows the size of the array and the number of searches for each program.

When executed, each program will take the input of the desired array size and will display the time it took in seconds to finish the number of searches specified in the file. There will be no prompt when waiting for user input.

Size of Array	10	100	1000	10000	100000	1000000	Number of Searches	
Size of Array in power of ten	10^1	10^2	10^3	10^4	10^5	10^6		
Binary Search(time in seconds)	5	9	14	19	26	36	100000000	
Sequential Search(time in seconds)	0	2	16	157	1572		10000000	
Binary Search (time per search in seconds)	0.00000005	0.00000009	0.00000014	0.00000019	0.00000026	0.00000036		
Seq Search Per (time per search in seconds)	0	0.0000002	0.0000016	0.0000157	0.0001572			
Size of Array	10	100	1000	10000	100000	1000000		
Binary Search (time per search in 10^-8 seconds)	5	9	14	19	26	36		
Seq Search Per (time per search in 10^-8 second	0	20	160	1570	15720	N/A		

Binary vs Sequential Search

Time/Search
$(10^{-8}$ sec$)$

10^7
10^6
10^5
10^4
10^3
10^2
10^1

Sequential Search

Binary Search

Number of Elements

10^1 10^2 10^3 10^4 10^5 10^6 10^7

Elements	Binary	Seq
10^1	5	6
10^2	9	20
10^3	14	160
10^4	19	1570
10^5	26	15700
10^6	36	—