Problem #4

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Lomuto quicksort | Hoare quicksort | Heapsort |
| [2, 8, 7, 1, 3, 5, 6, 4] | Total comparisons | 15 | 16 | 25 |
| Total swaps | 14 | 8 | 18 |
| Running time \* 1000 | 17.17 | 14.07 | 16.93 |
| [1, 2, 3, 4, 5, 6, 7, 8] | Total comparisons | 28 | 28 | 27 |
| Total swaps | 35 | 0 | 22 |
| Running time \* 1000 | 5.01 | 2.86 | 6.91 |
| [8, 7, 6, 5, 4, 3, 2, 1] | Total comparisons | 28 | 24 | 24 |
| Total swaps | 19 | 4 | 16 |
| Running time \* 1000 | 5.01 | 4.05 | 5.25 |
| [8, 5, 3, 4, 2, 6, 1, 7] | Total comparisons | 19 | 23 | 25 |
| Total swaps | 14 | 3 | 19 |
| Running time \* 1000 | 2.86 | 3.10 | 5.01 |
| random integer array of size 100,000 | Total comparisons | 6315451 | 952411 | 3018773 |
| Total swaps | 715053 | 548397 | 1574147 |
| Running time \* 1000 | 411780.12 | 142091.04 | 385272.03 |





