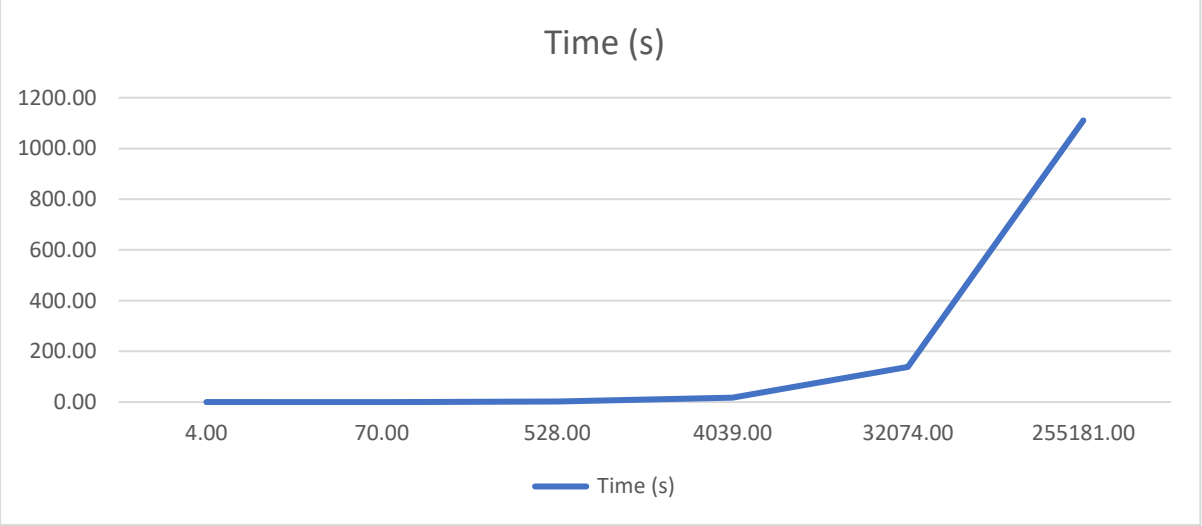
Lab 1 – Philip Byrne, 19449216

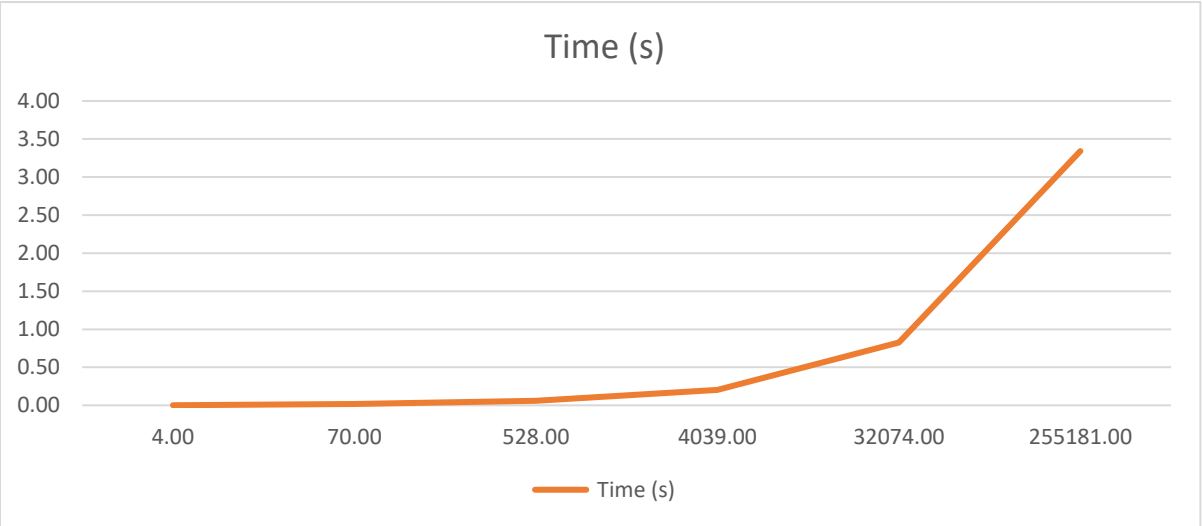
Algorithm – ThreeSumA

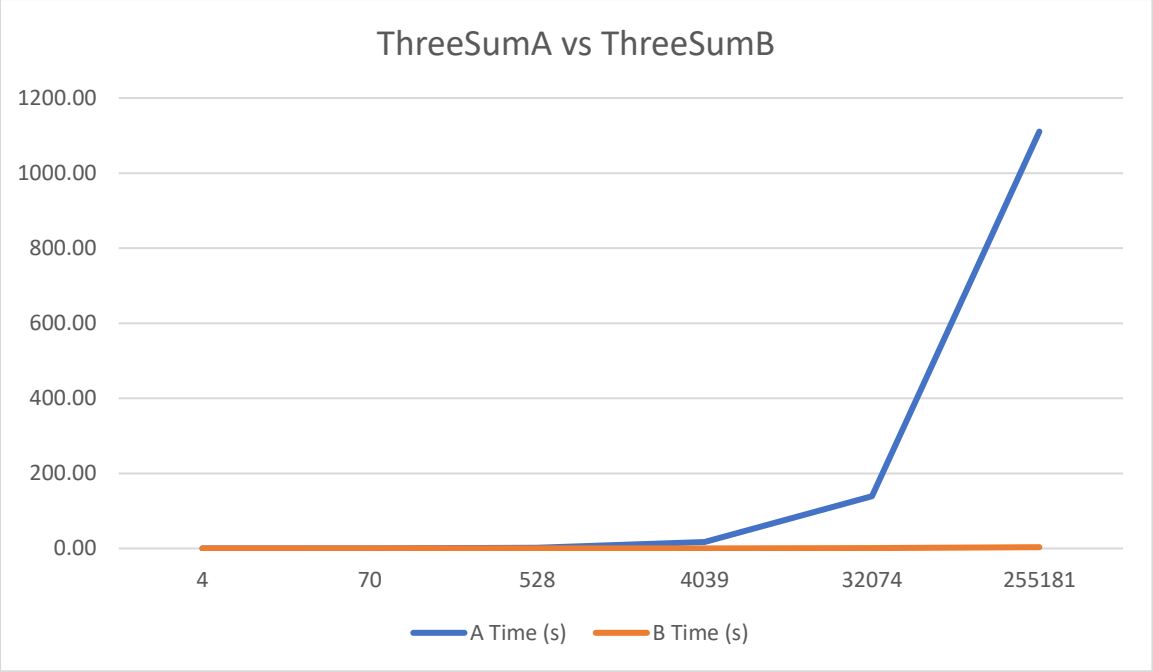
Input	Time (s)	Number of Triples
8ints.txt	0.000	4
1Kints.txt	0.279	70
2Kints.txt	2.177	528
4Kints.txt	17.348	4039
8Kints.txt	138.819	32074
16Kints.txt	1110.561	255181



Algorithm - ThreeSumB

Input	Time (s)	Number of Triples
8ints.txt	0.001	4
1Kints.txt	0.017	70
2Kints.txt	0.058	528
4Kints.txt	0.203	4039
8Kints.txt	0.827	32074
16Kints.txt	3.341	255181





Questions

1. ThreeSumB is the more efficient algorithm as the run times are extremely shorter than those of ThreeSumA while the accuracy is the same.
2. I think this is the case because ThreeSumB iterates through 2 times the number of ints in an efficient way, while ThreeSumA iterates through the ints multiple time due to the nested for loops forcing the program tgo iterate through each int multiple times. For example, for 16,000 ints ThreeSumA goes through 4.095X10^12 ints while ThreeSumB goes through 32,000. This decreases the run times by a huge amount.