**a)** Elapsed time in nanoseconds for original merge sort: 20247500

**d)** Elapsed time in nanoseconds for improved merge sort with max\_level=13: 12404200

Yes, it is faster

**e)**

Max level: 1, Elapsed time in nanoseconds: 1653841100

Max level: 2, Elapsed time in nanoseconds: 1592460700

Max level: 3, Elapsed time in nanoseconds: 1014170500

Max level: 4, Elapsed time in nanoseconds: 206064700

Max level: 5, Elapsed time in nanoseconds: 154249600

Max level: 6, Elapsed time in nanoseconds: 92505700

Max level: 7, Elapsed time in nanoseconds: 75856600

Max level: 8, Elapsed time in nanoseconds: 33747400

Max level: 9, Elapsed time in nanoseconds: 16102500

Max level: 10, Elapsed time in nanoseconds: 14283100

Max level: 11, Elapsed time in nanoseconds: 6255800

Max level: 12, Elapsed time in nanoseconds: 4650600

Max level: 13, Elapsed time in nanoseconds: 4413700

Max level: 14, Elapsed time in nanoseconds: 5982800

Max level: 15, Elapsed time in nanoseconds: 5645700

Max level: 16, Elapsed time in nanoseconds: 5945100

Max level: 17, Elapsed time in nanoseconds: 10799600

Best max level: 13, Min elapsed time in nanoseconds: 4413700