Activity 1. Measuring execution times

1) The biggest number we can represent in a long is 9 223 372 036 854 775 807. In a year, there are 3.154e+10 milliseconds. If we divide, we get 292434116 years approximately. We have been using this system for 50 years, so we have more or less 292434066 years left.

2) If the time measured is 0, it means that the time taken is either less than a millisecond or the measure has been more **altered by internal processes** than its real value.

3) 200000000

Activity 2. Grow of the problem size

For this exercise, I get an OutOfMemoryException before obtaining any good value.

CPU: Intel® Core™ i5-3470 CPU @ 3.20GHz

RAM: 8GB

Activity 3. Taking small execution times

Escuela de Ingeniería Informática

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Activity 4. Operations on matrices

Activity 5. Benchmarking

1) Because different programming languages offer different performances in specific fields. In general, python is slower than Java in these scenarios because it is an interpreted programming language.

2) Yes. Both of them are able to execute more iterations of the linear part before reaching the limit of 5 seconds, while they are able to execute a few less repetitions in the quadratic part.