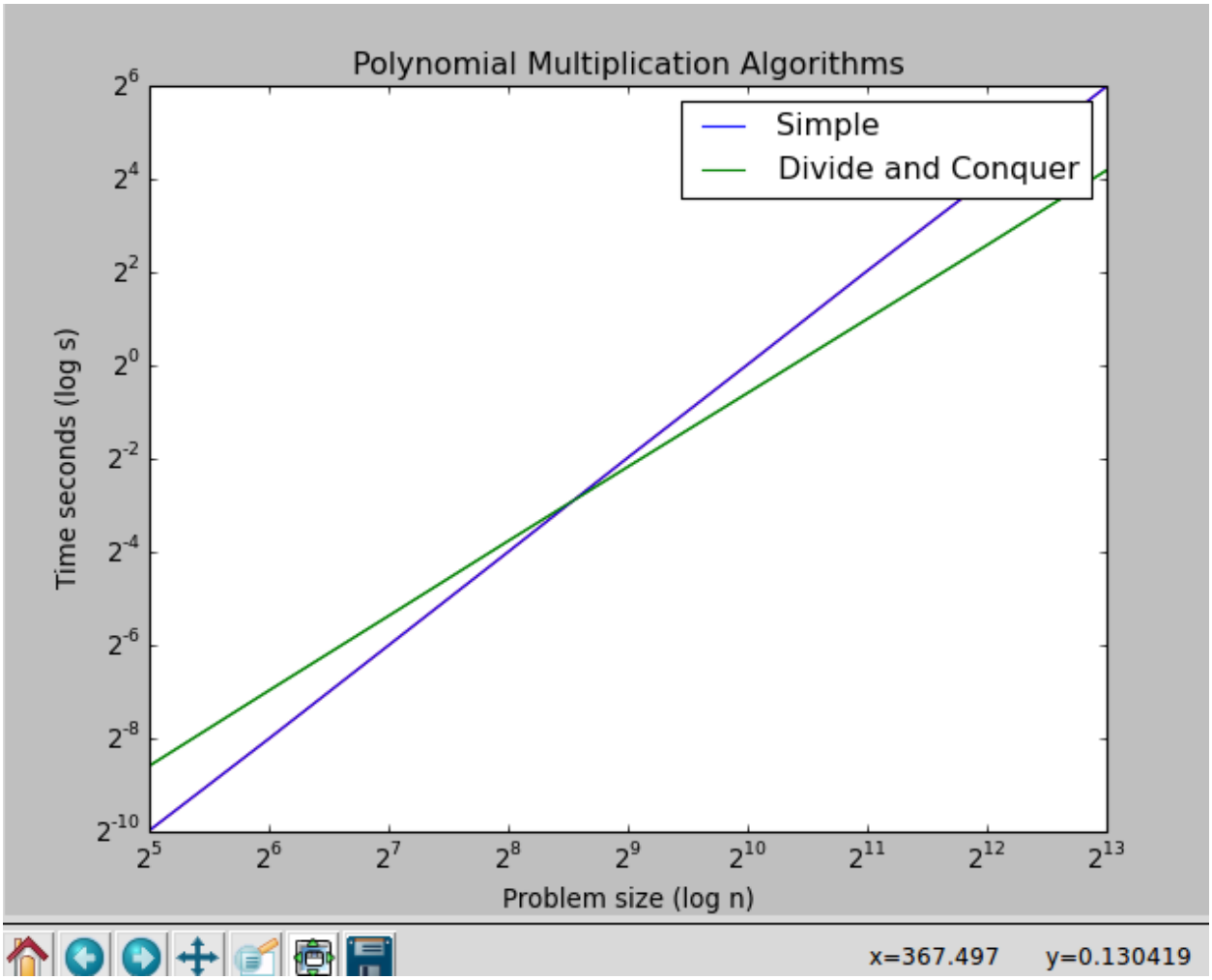
Report

By Craig Tingey



According to the graph, the simple algorithm for multiplying polynomials is faster than the divide and conquer algorithm up until the point where n is approximately 367. N = 367 is approximately the crossing point between the time it takes for the algorithms to solve the same size polynomial multiplication problem, and the time at the crossing point is approximately 0.1304 seconds. As you can see by the graph, it doesn't take long for the divide and conquer algorithm to surpass the simple algorithm with 4 multiplies. The graph proves that eliminating one multiply from the algorithm has significant performance improvements even in rather small problem sizes.

Calculate the Slopes and compare

Slope of Simple Algorithm = 1.99452

Slope of Divide and Conquer Algorithm = 1.59648

Both slopes are extremely close to the expected slopes 2 and 1.585 for Simple and Divide and Conquer respectively.