

Time elapsed for various N:

For N = 20,000

Linear: 0.0 s

Quadratic: 0.003 s

Cubic: 2597.867 s

For N = 100,000

Linear: 0.0 s

Quadratic: 2.977 s

Cubic: took too long to get experimentally (calculated using N = 20,000 data), 324733.375 s

Calculation work:

$$T(N) = aN^3$$

$$2597.867 = a(20,000)^3$$

$$a \approx 3.2473 \times 10^{-10}$$

$$T(100,000) = 3.2473 \times 10^{-10} (100,000)^3$$

$$\approx 324733.375$$

