

## Why does my nlogn graph look linear?

The data below is generated with  $f(n) = n \log n$ , still the graph looks linear with a very high R-squared value. If we look at the values of  $\log n$  we can see that for the range of values of  $n$   $\log n$  only varies from 3 to 4. This variation is so small when compared to the values of  $n$  that for all practical purposes it is a constant. In theory the algorithm may be  $n \log n$  but for some narrow ranges of  $n$  it may appear almost linear.

n	nlogn	logn
1000.00	3000.00	3.00
2000.00	6602.06	3.30
3000.00	10431.36	3.48
4000.00	14408.24	3.60
5000.00	18494.85	3.70
6000.00	22668.91	3.78
7000.00	26915.69	3.85
8000.00	31224.72	3.90
9000.00	35588.18	3.95
10000.00	40000.00	4.00

