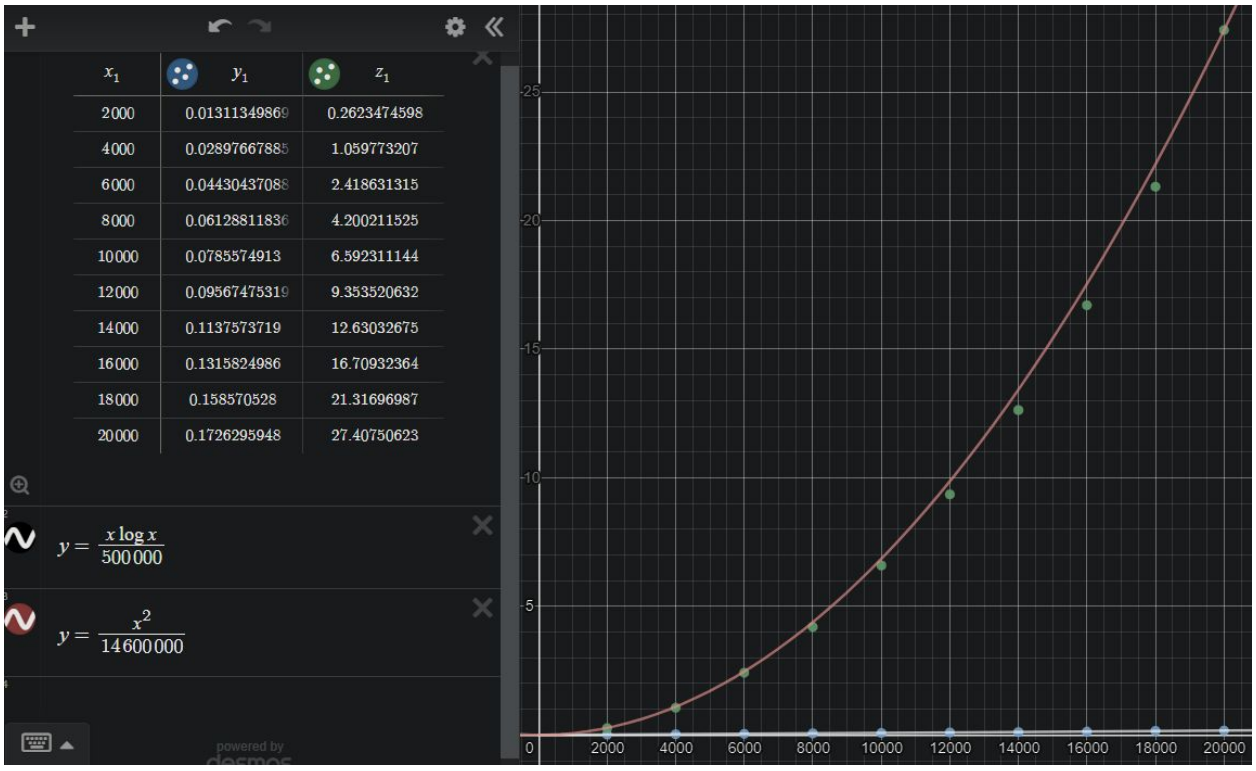
How I got the random numbers:
I started n (length of array) at 2000 and did a while loop for 10 iterations by adding 2000 after each loop (while n <= 20000 : includes the 10th 20000 array).

Within the while loop i created an array arr and made another while loop from 0 to n and appended random int from 0 to 10000.

I then start time, sorted then printed.

The arr is then reset and reused on the next n iteration.

Prediction / Comparison:
my formulas are:
  merge => y = (nlogn) / 500000
  insertion => y = (n^2) / 14600000
which when entering 20,000 I get
  merge => 0.17204
  insertion => 27.3972
which are fairly close, which some fine tuning would be better.



x_1	y_1	z_1
2000	0.01311349869	0.2623474598
4000	0.02897667885	1.059773207
6000	0.04430437088	2.418631315
8000	0.06128811836	4.200211525
10000	0.0785574913	6.592311144
12000	0.09567475319	9.353520632
14000	0.1137573719	12.63032675
16000	0.1315824986	16.70932364
18000	0.158570528	21.31696987
20000	0.1726295948	27.40750623

$y = \frac{x \log x}{500000}$

$y = \frac{x^2}{14600000}$