

Figure 1 is a line graph showing the training and testing loss curves for different values of N (4, 40, 100, 500, 1000) over 100 epochs. The y-axis represents the loss, ranging from 0.0 to 0.8. The x-axis represents the epoch, ranging from 0 to 100. The legend indicates that solid lines with circles represent training loss and dashed lines with 'x' markers represent testing loss. The curves show that the training loss decreases rapidly for all N values, with the rate of decrease being highest for $N=4$ and lowest for $N=1000$. The testing loss also decreases, but the rate of decrease is much slower than the training loss, and the testing loss is generally higher than the training loss for all N values.

Training Set Size	Number of Parameters
4	3×10^{-1}
40	2×10^{-2}
100	1.5×10^{-3}
500	1.5×10^{-5}
1000	$10^{-6.5}$

The graph displays the accuracy of a model over 100 epochs for five different values of N : 4, 40, 100, 500, and 1000. The y-axis represents Accuracy, ranging from 0.5 to 1.0. The x-axis represents Epoch, ranging from 0 to 100. The legend indicates that solid lines with circular markers represent Training (Train) data, and dashed lines with 'x' markers represent Testing (Test) data.

- $N=4$ (Blue):** Shows rapid convergence, reaching an accuracy of 1.0 by epoch 30 and maintaining it until epoch 100.
- $N=40$ (Orange):** Shows slower convergence, reaching an accuracy of approximately 0.67 by epoch 100.
- $N=100$ (Green):** Shows the slowest convergence, reaching an accuracy of approximately 0.51 by epoch 100.
- $N=500$ (Red) and $N=1000$ (Purple):** These series are not visible in the plot, likely because their accuracy is consistently at or near 1.0.

Overall, the graph demonstrates that smaller values of N lead to faster convergence and higher final accuracy in this context.