Problem 1  


Questions:

1.a.

**Q:** What are the above digits and why are they very blurry (compared to the real handwritten digits in MNIST)?

**A:** The above digits represent the numbers 0-9 and will be used to compare the test data to. They are blurry because of add-one smoothing on the images. This is used to make the model more effective at recognizing the digits. It does this by increasing the value of each pixel in the digit images by 1. This helps make even the smallest features in the pictures more significant and noticeable so that unusual data can be handled better.

1.b.

**Q:** The current code uses MAP to estimate the parameters for P(x|y) and scores at 84.27% accuracy. Implement MLE estimation and report the accuracy of this classifier.

**A:** MLE estimation gave me an accuracy of 70.06%