**Homework Set 11**

**Problem 1 (k-means)**

Download the dataset “11HW1\_KmeanData.mat”. You will find variables and in the dataset. Use MATLAB function kmeans to cluster the 2 variables. Try and . As part of your results, display all observations along with their labels in a plot for each variable and each value.

**Problem 2 (k-means)**

In this problem, you will use k-means to compress images by reducing the number of colors it contains. Find the greyscale image “11HW2\_PatchPanelsGrey.jpg” and the true-color image “11HW2\_PatchPanels.jpg”.

1. Display the images after data compression using k-means clustering for different values of and .
2. What are the compression ratios for different values of ?
3. You will see that there is a trade-off between degree of compression and image quality. What would be a good value of for each of the two images?