

The scatter plot displays three distinct clusters of data points in a 2D space defined by axes  $X_1$  and  $X_2$ . Each cluster is associated with a set of true components, represented by dashed ellipses. The clusters are color-coded: green, red, and black.

- Green Cluster:** Located in the upper-left region. It contains 15 data points labeled with green numbers: 53, 63, 45, 20, 16, 56, 80, 88, 102, 79, 68, 36, 26, 47, and 55. The dashed ellipse for this cluster is centered around  $X_1 \approx -3.5$  and  $X_2 \approx 6$ .
- Red Cluster:** Located in the upper-right region. It contains 15 data points labeled with red numbers: 113, 104, 94, 40, 14, 42, 63, 48, 8, 74, 1, 10, 72, 46, and 50. The dashed ellipse for this cluster is centered around  $X_1 \approx 5$  and  $X_2 \approx 5$ .
- Black Cluster:** Located in the lower-middle region. It contains 25 data points labeled with black numbers: 86, 45, 39, 67, 35, 15, 9, 2, 60, 66, 11, 17, 18, 19, 5, 8, 59, 23, 12, 100, 103, 10, 16, 76, and 52. The dashed ellipse for this cluster is centered around  $X_1 \approx 0$  and  $X_2 \approx 0$ .

