a.)

A graph of a graph

Description automatically generated with medium confidenceThe distributions of glucose values for the sample and population look fairly similar, with the sample distribution appearing slightly more skewed towards higher values.

So, while the random sample of 25 observations provides a reasonable estimate of the population mean glucose, and the maximum glucose value in the sample matches the population maximum, there are some minor differences in the distributions, likely due to the small sample size.

b.)

A graph of a number of values

Description automatically generated with medium confidence

The sample distribution appears to be slightly shifted towards lower BMI values compared to the population distribution.

The vertical lines on the plot indicate the 98th percentile BMI values for the sample (red dashed line) and the population (green dashed line).

So, while the 98th percentile BMI values for the sample and population are relatively close, there is a noticeable difference, likely due to the small sample size and the slight shift in the sample distribution towards lower BMI values.

c.)

A screenshot of a graph

Description automatically generated

These findings suggest that the bootstrap sampling method provides reliable estimates of the population mean, standard deviation, and 75th percentile for the BloodPressure variable. The bootstrap estimates are tightly clustered around the true population values, indicating that the bootstrap method is effective in capturing the underlying distribution of the data.

Overall, the bootstrap approach appears to be a suitable method for estimating the population statistics of interest, particularly when the sample size is moderate or large, as in this case.