Inference About μ   **Math 121 - Workshop**

In 2014, 9 Martians visit the planet Earth. Although the Martians seem friendly, their arrival on the White House lawn has startled the U.S. government. You have been hired to determine whether Martians pose a strategic threat to planet Earth. One important question is: Are Martians smarter than humans? The average IQ of a human is 100 with a standard deviation of 15. When asked, all 9 Martians agree to take an IQ test. Here are their scores:

$$119 \quad 104 \quad 95 \quad 119 \quad 122 \quad 121 \quad 106 \quad 124 \quad 80$$

This data has $\bar{x} = 110$ and $s = 15$.

1. Are Martians significantly smarter than humans?

2. Estimate the average IQ of Martians. Be sure to quantify your uncertainty.

3. You should have used statistical inference in the last two questions. Is it safe to use the statistical procedures that you used with this data? Why or why not?

4. Should we worry that this sample of Martians might be biased? Why or why not?