Name:

Elementary Statistics

1. When designing an eye-recognition device, engineers must consider the eye heights of standing women (it's easier for men to bend lower but more difficult for women to rise higher). Listed below are the eye heights (in millimeters) obtained from a simple random sample of standing adult women.

1550 1642 1538 1497 1571

Use the given eye heights to find the following sample statistics. You can use your calculator to find the answers but use proper notation, round your final answers to the nearest tenths place, and label your answers with the appropriate measurement.

- a. Mean
- b. Median
- c. Mode
- d. Midrange
- e. Range
- f. Standard deviation
- g. Variance
- h. First quartile
- i. Third quartile
- j. Interquartile range
- k. Find the z-score corresponding to the woman's eye height of 1642 mm. Is that eye height unusual? Why or why not?
- I. Find the 5 number summary:
- m. Use the values of the 5 number summary to construct a boxplot:

- An article in the New York Times notes that these new zip codes were created in New York City: 10065 10021 10075
 - a. Find the mean of these three numbers.
 - b. What is fundamentally wrong with this result?
- 3. A UAlbany Statistics class with 30 total people consists of 11 students with no income, 18 students with small incomes from part-time jobs, and 1 professor with a very large income. Which is better for describing the income of a typical person in this class: the mean or the median? Explain.
- 4. Sam is taking a Statistics class where there are 4 unit tests that count as 15% each and a final exam that is 40% of his final grade. If Sam scored a 73, 85, 67, and 91 on the unit tests and an 82 on the final exam, calculate Sam's final grade to the nearest hundredths place.
- 5. The body mass indices (BMI) of a sample of males have a mean of 26.601 and a standard deviation of 5.359. The body mass indices of a sample of females have a mean of 28.441 and a standard deviation of 7.394. When considered among members of the same gender, who has the relatively larger BMI: a male with a BMI of 28.00 or a female with a BMI of 29.00? Why?
- 6. Engineers designing overhead bin storage in an aircraft must consider the sitting heights of male passengers. Sitting heights of adult males have a mean of 914mm and a standard deviation of 36mm.
 - a. Use the range rule of thumb to identify the minimum "usual" sitting height and the maximum "usual" sitting height.
 - b. Which of the two values found in part a would be more relevant in this situation? Why?

 The following list represents the population of ages (in years) of all 5 Delta airplanes that land at the Los Angeles airport:
12
4
11
7
15

Use the ages of these 5 Delta airplanes to find the following population parameters. You can use your calculator to find the answers but use proper notation, round your final answers to the nearest tenths place, and label your answers with the appropriate measurement.

- a. Mean
- b. Median
- c. Mode
- d. Standard deviation
- e. Variance
- f. First Quartile
- g. Third Quartile
- h. Find the Delta airplane age at the 65th percentile.
- i. Find the percentile rank of an airplane that is 10 years old.
- j. The ages of all planes that land at the Los Angeles Airport have a mean of 10.7 and a standard deviation of 2.4 years. What is the z-score for the Delta airplane that is 12 years old? Based on all airplanes landing in LA, would this airplane's age be considered unusual?
- k. Would the Delta airplane's age of 15 years be considered an outlier? Be sure to show your calculations.