Math 123-01
Summer 2025
Dr. Lily Yen

Assignment 6
Show all your work

Problem 1: Below is a stem-and-leaf plot of a sample data set of ages of volunteers in CapU's June Convocation. Answer the following questions. Remember to include units when applicable.

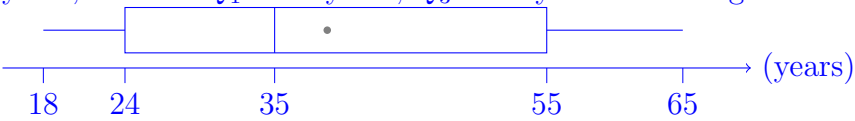| 1	8 9
2	1 4 4 6
3	2 5
4	3 8
5	5 5 8
6	0 5

a. How many volunteers were sampled?

b. Find the median.

c. Find the mode(s).

d. Find the range.

e. Draw a boxplot for the data; clearly label the first, second, and third quartiles.

a. $n = 15$ volunteers; b. the median is 35 years; c. the mode is $\{24, 55\}$ years; d. 18–65 years, and e. $Q_1 = 24$ years; $Q_3 = 55$ years excluding the median.

Problem 2: The histogram shown is a summary of a survey of the number of aunts and uncles (on the horizontal axis) a sample of Lily's summer students have. Answer the following questions. Remember to include units when applicable.

a. Find the number (n) of students surveyed.

b. Find the average number of aunts and uncles per student in the sample.

c. Find the variance and the standard deviation of the sample data.

a. The number of students surveyed is $n = 5 + 6 + 9 + 13 + 10 = 43$ students.

b. The average number of aunts and uncles is
$(5 \times 1 + 6 \times 2 + 9 \times 3 + 13 \times 4 + 10 \times 5)/43 = 146/43 \approx 3.4$ aunts and uncles per student.

c. The variance is

$$\frac{5 \times (1 - \frac{146}{43})^2 + 6 \times (2 - \frac{146}{43})^2 + 9 \times (3 - \frac{146}{43})^2 + 13 \times (4 - \frac{146}{43})^2)^2 + 10 \times (5 - \frac{146}{43})^2}{43} \approx 1.681$$

so the standard deviation is $\sqrt{1.681} \approx 1.296$.