

Math 123-02
Fall 2024
Dr. Lily Yen

Quiz 6

Show all your work

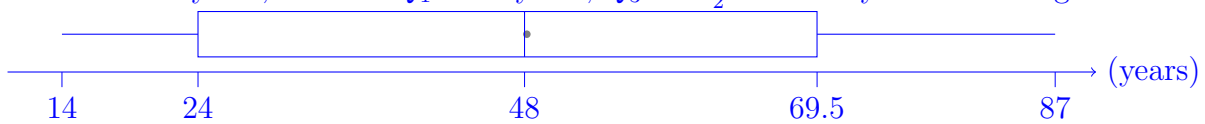
Name: _____
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Score: ____/13

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

1		5	7	7	9
2		0	4	4	4
3		0	2	2	5
4		3	6	8	
5		2	5	5	8
6		0	5	9	
7		0	4	6	
8		2	3	5	7

- What is the sample size? That is, how many volunteers were sampled?
- Find the median.
- Find the mode.
- Find the range.
- Find the first quartile and the third quartile.
- Draw a boxplot for the data.

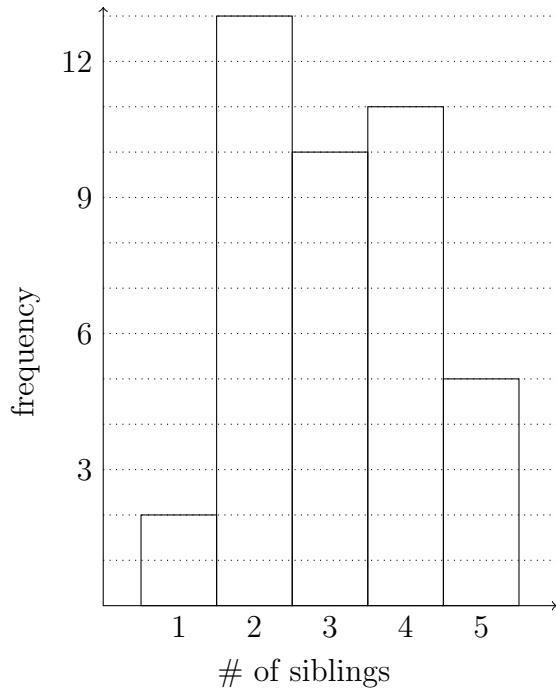
a. $n = 29$ volunteers; b. the median is 48 years; c. the mode is 24 years; d. 15–87, or $87 - 15 = 72$ years, and e. $Q_1 = 24$ years; $Q_3 = \frac{69+70}{2} = 69.5$ years excluding the median.



Score: /7

/7

Problem 2: The histogram shown is a summary of a survey of the number of siblings (on the horizontal axis) a sample of students have in the budget travel club at Capilano University. Answer the following questions. Remember to include units when applicable.



- Find the number (n) of students surveyed.
- Find the average number of siblings per student in the sample.
- Find the mode for the number of siblings per student in the sample.
- Find the median for the number of siblings per student in the sample.
- Find the variance and the standard deviation of the sample data.

a. The number of students surveyed is $n = 2 + 13 + 10 + 11 + 5 = 41$ students.

b. The average number of siblings is $(2 \times 1 + 13 \times 2 + 10 \times 3 + 11 \times 4 + 5 \times 5)/41 = 127/41 \approx 3.1$ siblings per student.

c. The mode is 2 siblings/student.

d. The median for 41 values is the 21st, so 3 siblings/student.

e. The variance is

$$\frac{2 \times (1 - \frac{127}{41})^2 + 13 \times (2 - \frac{127}{41})^2 + 10 \times (3 - \frac{127}{41})^2 + 11 \times (4 - \frac{127}{41})^2 + 5 \times (5 - \frac{127}{41})^2}{41 - 1} \approx 1.290,$$

or 1.3, so the standard deviation is $\sqrt{1.290} \approx 1.136$, or 1.1 siblings.

Score: /6