Math 123
Fall 2023
Dr. Lily Yen

Assignment 6

Show all your work

Name: _____
Number: _____
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Score: ___/13

Problem 1: The histogram shown is a summary of a survey of the number of siblings (on the horizontal axis) each student has from Lliy's Math123 class at Capilano University. The vertical axis is for frequency. Answer the following questions.

a. Label the axes.

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

c. Find the average number of siblings students in Lily's class have.

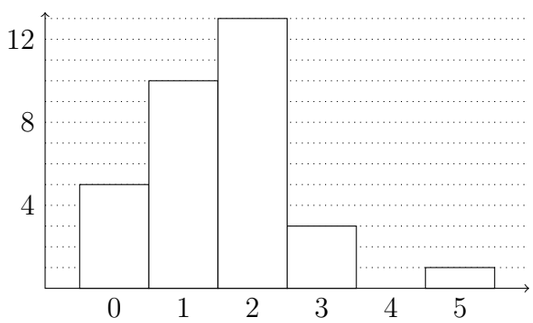
d. Find the mode for the number of siblings.

e. Find the median for the number of siblings.

f. Compute the first quartile and the third quartile from the frequency histogram.

g. Draw a boxplot for the data.

h. Find the standard deviation assuming that all students in the class are included in the survey.



a. The axes are *number of siblings per student* on the horizontal, and *frequency* on the vertical.

b. The number (n) of students surveyed is the sum of frequency:
$5 + 10 + 13 + 3 + 1 = 32$. So $n = 32$.

c. The average number of siblings per student in Lily's class is
$\sum x/n = \frac{5\times0+10\times1+13\times2+3\times3+1\times5}{32} \approx 1.6$ siblings per student.

d. The mode is 2 siblings per student.

e. The median for the number of siblings per student is the average of the 16th and the 17th data, thus 2 siblings per student again.

f. The first quartile is the average of the 8th and the 9th data, thus 1 sibling per student. The third quartile is the average of the 24th and the 25th data, thus 2 siblings per student.

g. The boxplot for the data is a five number summary where minimum is 0, maximum is 5, and the 3 quartiles are listed above.

h. The *population* standard deviation assuming that all students in the class are included in the survey is

$$\sigma = \sqrt{\frac{5\times(0-1.6)^2 + 10\times(1-1.6)^2 + 13\times(2-1.6)^2 + 3\times(3-1.6)^2 + 1\times(5-1.6)^2}{32}} \approx 1.1$$

sibling/student

Score: /13