Open Intro Questions 1.39-1.53

1.38 a. Positive association

b.Positive association

c. No they are linearly dependent on each other.

1.39 a. Positive Association – 1 – Linear 3-Exponential

b. 4 - Linear

c. 2

1.40 sinusoidal

1.41 Ones the space and nutrients finishes for 1 million bacterial cells, the growth of number of bacterial cells will become constant over time.

1.42 6.25 is sample mean

5.5 is population mean

1.43 a. sample mean – 58

Population mean – 52

b. sample mean – 3.59

population mean – 3.37

1.44 a. decrease

b. 73.6

c. No as standard deviation is a stable statistic measure in comparison to mean and median values.

1.45 10 employees with days off between minimum value and mean value should be fired to maintain the average days off.

1.46 a. Median is 6 for both but IQR is greater for 2 distribution

c. 1 – M- 3 IQR – same 2 – M – 8 IQR – same

b. 1- M – 6 2- M-7 IQR is same

d. 1- m – 50 IQR is large 2- m -500 IQR is large

1.47 a. Mean of 2 is higher than 1 because 20 is greater than 13. SD is larger for 2 since 20 is more far than other observations.

b. Mean is less for 2 than 1 as -40 is smaller than -20. SD is higher for 2 as -40 is more far away than other observations.

c. Mean is higher for 2 than 1. SD is same for both.

d. Mean is same.SD is higher for 2 as 0 far away than 50 and other observations.

1.48. Chart, box and whisker chart

Description automatically generated

1.49. a Median – 15 Q1 – 5 Q3- 35

b. Mean should be higher than the median because the histogram is right skewed.

1.50 a.2

b.3

c.1

1.51 a. Median is about 30

b. Mean should be higher than the median since it slightly right skewed.

c. Q1 = 15-20 Q3 = 35-40 IQR = 20

d. By calculating upper and lower fence values Q1-1.5\*IQR and Q3 + 1.5\*IQR. We can decide on unusual the low and high values.

1.52. Since it is left skewed so mean will be lower than median. About 82.

1.53. Histogram – Right skewed, Frequency is highest 4-6.

Boxplot – Median Q1 Q3 vlaues are clearly visible. Unusual high values are clearly visible.

1.54 a. Histogram is bimodal. Median and outliers can be seen clearly in boxplot.

b. Both males and females are competitive enough.

c. For men median time is lower than of women and there are certain women which has large values of time..

d. Over the years for both men and women the time has decreased.

1.55 a. Number of pets per household – right skewed, median,IQR

b. median , right skewed, median, IQR

c. mean, std deviation, symmetric