Question 1

0.5 points Save Answ

Suppose we are given the following summary statistics: $X_{min} = 52$, $Q_1 = 66$, $Median = 68$, $Q_3 = 71$, $X_{max} = 91$. What values (if any) would be considered extreme outliers? Select ALL that apply.

$IQR = Q_3 - Q_1 = 71 - 66 = 5$

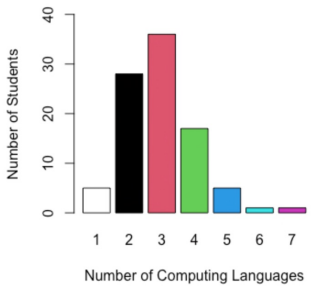
Extreme Outliers :

- Below : $Q_1 - 3IQR = 66 - 3(5) = 51$
- Above : $Q_3 + 3IQR = 71 + 3(5) = 86$

Question 2

0.5 points ✓ Saved

The number of computing languages that each student from last semester knows was recorded and shown in the plot below. What answer is false regarding the plot?



- ○ A. Very few students know 6 or 7 languages.
- ○ B. The plot is called a histogram.
- ○ C. The mode is 3 languages.
- ○ D. About 17 students know 4 languages.
- ◉ E. The data is discrete.

Question 18

Phone numbers are what type of data?

- ○ A. Quantitative
- ◉ B. Qualitative

Question 17

0.5 points

In the survey given to my previous classes, one of the questions asked you where you live: off-campus, Northside, campus dormitory, or campus apartment. The most appropriate measure of central tendency for this variable is the mode.

- ◉ True
- ○ False

Question 16

0.5 poi

Let $f(x) = \frac{2}{x^3}$ where $1 \le x < \infty$ be the p.d.f. for the random variable, X. Compute the median. Round to two decimal places.

$$\int_1^M pdf\, dx = 0.5$$

$$\int_1^M \frac{2}{x^3} dx = 0.5$$

$$2\int_1^M \frac{1}{x^3} dx = 0.5$$

$$2\left(-\frac{1}{2x^2}\right)\Big|_1^M = 0.5$$

$$2\left[\left(-\frac{1}{2M^2}\right) - \left(-\frac{1}{2}\right)\right] = 0.5$$

$$-\frac{1}{M^2} + 1 = 0.5$$

$$\frac{1}{M^2} = \frac{1}{2}$$

$$M^2 = 2$$

$$M = \pm\sqrt{2}$$

median is positive

$\therefore$ $M = 1.41$

Question 8

Suppose $E(\widehat{\beta}) = \dfrac{n+1}{n}\beta$. Find an unbiased estimator for β.

$$10k_1\hat{\theta}_1 + 10k_2\hat{\theta}_2 = \Theta$$

$$10(k_1\hat{\theta}_1 + k_2\hat{\theta}) = \Theta$$

$$\frac{10\Theta(k_1 + k_2)}{10} = \Theta$$

Question 12 0.5

A set of data has sample size n = 322. You arrange the data in order from the least to greatest: $X_{(1)}, X_{(2)}, \ldots, X_{(322)}$. What value is the median?

median : $M = \frac{1}{2}\left(X_{\left(\frac{322}{2}\right)} + X_{\left(\frac{322}{2}+1\right)}\right) = \frac{1}{2}\left(X_{161} + X_{162}\right)$

(even)

Question 13

In a class survey, about 23% of the class is over 21 years of age. Which of the following is correct?

- A. The quantile is 21; the percentile is 77.
- B. The quantile is 21; the quartile is 77.
- C. The quantile is 21; the percentile is 23.
- D. The quantile is 21; the quartile is 23.
- E. The percentile is 21; the quantile is 77.
- F. The percentile is 21; the quantile is 23.

Question 14

Student GPA's are what type of variable?

- A. Continuous
- B. Discrete