

Name: _____ Date: _____

1. Measures of _____ indicate where the majority of the data are centered, bunched, or clustered.
 - A) variability
 - B) precision
 - C) central tendency
 - D) predictability

2. \bar{x} is the:
 - A) population mean.
 - B) sample mean.
 - C) geometric mean.
 - D) sample median.

3. m is the:
 - A) population mean.
 - B) sample mean.
 - C) harmonic mean.
 - D) population median.

4. The sample mean is a(n):
 - A) fixed constant characteristic.
 - B) random variable (i.e., varies from sample to sample).
 - C) unknowable quantity.
 - D) good indicator of the spread of a data set.

5. $\frac{n}{N}$ is the sample:
 - A) mean.
 - B) average.
 - C) proportion.
 - D) median.

6. $\frac{N}{n}$ is the population:
 - A) mean.
 - B) average.
 - C) proportion.
 - D) median.

7. The _____ of a data set is the middle number when the observations are arranged in order from smallest to largest.
- A) weighted mean
 - B) mode
 - C) median
 - D) arithmetic mean
8. If the sample mean is GREATER THAN the sample median, the sample is:
- A) positively skewed.
 - B) negatively skewed.
 - C) symmetric.
 - D) not valid for inference.
9. If $\bar{x} > \bar{x}$, then the:
- A) sample is negatively skewed.
 - B) population must be negatively skewed.
 - C) sample is positively skewed.
 - D) population must be positively skewed.
10. $\bar{x}_{tr(.05)}$ is the:
- A) fifth trial average.
 - B) fifth trial median.
 - C) 5% trimmed mean.
 - D) 5% triangulated mean.
11. The _____ of a data set is the value that occurs most often, or with the greatest frequency.
- A) mean
 - B) median
 - C) mode
 - D) relative frequency
12. \hat{p} is the sample:
- A) proximity.
 - B) precondition.
 - C) proclivity.
 - D) proportion.

13. Calculate the mean from the following sample data:

- 8 10 7 14 53 22 5 5 5 22
- A) 5
B) 151
C) 9
D) 15.1

14. Calculate \bar{x} for the following sample data set:

- 8 10 7 14 53 22 5 5 5 22
- A) 5
B) 11.5
C) 9
D) 15.1

15. Calculate $\bar{x}_{tr(0.10)}$ for the following sample data set:

- 8 10 7 14 53 22 5 5 5 22
- A) 11.63
B) 15.1
C) 15.5
D) 9

16. What is the mode of the following sample data set?

- 8 10 7 14 53 22 5 5 5 22
- A) 15.1
B) 9
C) 5
D) 22

17. The smallest numeric value in a data set subtracted from the largest is the:

- A) standard deviation.
B) variance.
C) mean squared error.
D) range.

18. For any set of n numbers, the sum of all n deviations about the arithmetic mean will always be:

- A) greater than 0.
B) less than 0.
C) equal to 0.
D) greater than n .

19. Calculate s^2 for the following sample:

5 2 6 2 7 3

- A) 4.57
- B) 2.14
- C) 4.17
- D) 5

20. s^2 is the:

- A) sample standard deviation.
- B) population standard deviation.
- C) population variance.
- D) squared sample standard deviation.

21. Find the third quartile of the following data set:

8 10 7 14 53 22 5 5 5 22

- A) 5
- B) 22
- C) 9
- D) 14

22. A continuous population has a mean of 210.51 and a standard deviation of 10.31. Suppose we know that the population is normally distributed. Compute the smallest interval centered on the mean that will contain 95% of the observations.

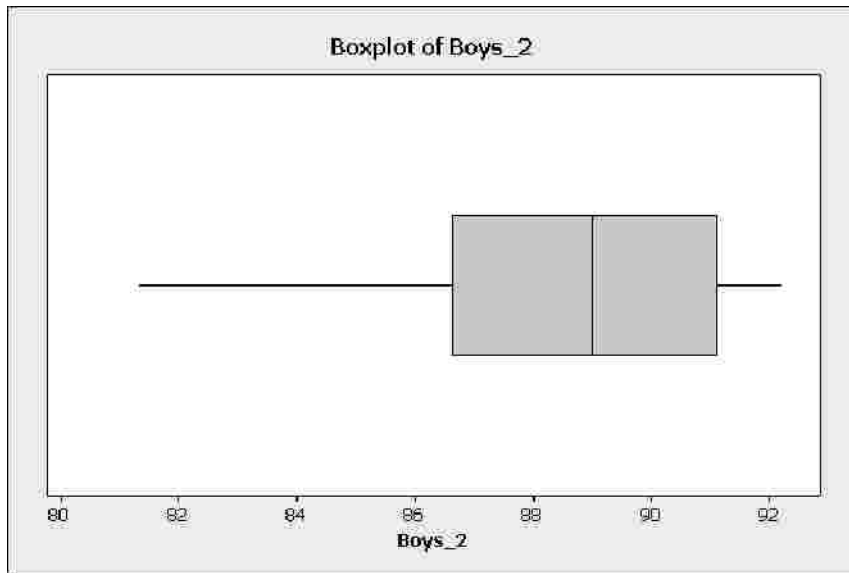
- A) (200.20, 220.82)
- B) (164.40, 256.62)
- C) (179.58, 241.44)
- D) (189.89, 231.13)

23. It is known that WAIS IQ scores are normally distributed with a $m = 100$ and $s = 15$. Approximately what proportion of the population has an IQ score greater than 145?

- A) 0.05
- B) 0.003
- C) 0.0015
- D) 0.025

24. It is known that WAIS IQ scores are normally distributed with $m = 100$ and $s = 15$. Approximately what proportion of the population has an IQ score between 85 and 145?
- A) 0.8385
 - B) 0.9970
 - C) 0.4985
 - D) More information is needed to answer the question.
25. Which measure of central tendency is also the 50th percentile?
- A) mean
 - B) median
 - C) mode
 - D) arithmetic average
26. The following is an abbreviated list of scores from a recent exam. Which exam score is the 10th percentile?
- | | | | | | |
|----|----|----|----|-----|----|
| 82 | 88 | 74 | 84 | 70 | 98 |
| 62 | 28 | 51 | 98 | 100 | 56 |
- A) 98
 - B) 28
 - C) 51
 - D) 56

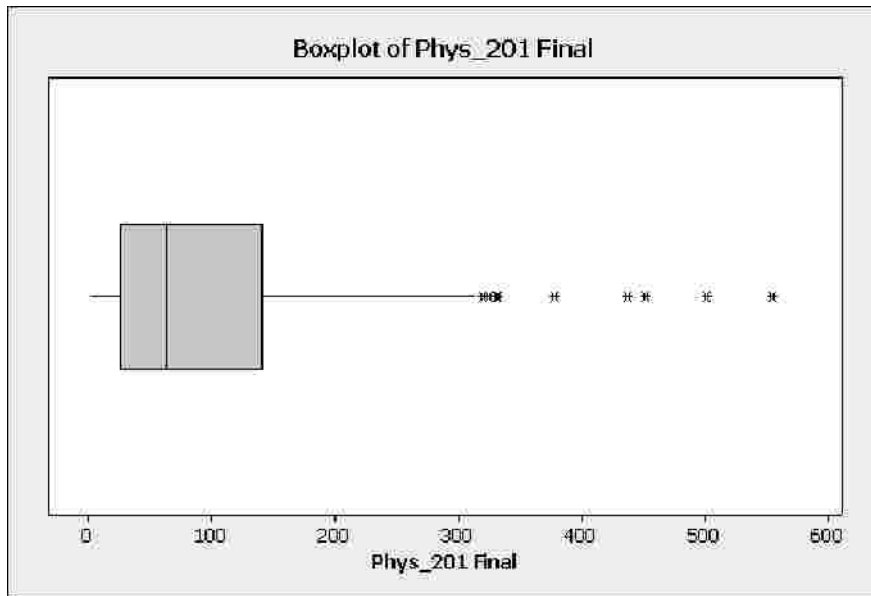
27.



The boxplot above summarizes the heights in centimeters of a group of 2-year-old boys. The first quartile of the data set appears to be nearest to:

- A) 87.
- B) 89.
- C) 91.
- D) Quartiles are not discernable from a boxplot.

28.



The final exam for an intermediate level engineering physics class consisted of six parts, each worth 100 points (600 total points for the final exam). The total scores from the class are summarized in the boxplot above. The overall shape of this data set is BEST described as:

- A) symmetric.
- B) left-skewed.
- C) bimodal.
- D) right-skewed.

29. The lengths of the reigns of 50 British monarchs (in years) are summarized with a five-number summary as follows:

$$x_{\min} = 0, Q_1 = 6, \bar{x} = 15.5, Q_3 = 24, x_{\max} = 63, \bar{x} = 18.92.$$

If the maximum of 63 years is accidentally recorded as 630 years, how will this affect the median?

- A) The median will increase.
- B) The median will decrease.
- C) The median will be unchanged.
- D) It is impossible to determine without having the complete data.

30. The lengths of the reigns of 50 British monarchs (in years) are summarized with a five-number summary as follows:

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If the maximum of 63 years is accidentally recorded as 630 years, how will this affect the mean?

- A) The mean will increase.
 - B) The mean will decrease.
 - C) The mean will be unchanged.
 - D) It is impossible to determine without having the complete data.
31. The mode of a symmetric, bell-shaped distribution should:
- A) be roughly the same as the mean.
 - B) be roughly the same as the median.
 - C) be unique.
 - D) All of the above
32. s is the:
- A) sample standard deviation.
 - B) population standard deviation.
 - C) population variance.
 - D) squared sample standard deviation.
33. What is the SMALLEST possible value for a sample standard deviation?
- A) -10
 - B) 0
 - C) 1
 - D) There is no smallest value.
34. What is the LARGEST possible value of the sample standard deviation?
- A) 100
 - B) 1,000
 - C) 1,000,000
 - D) There is no largest possible value.
35. Which of the following can be used to check normality?
- A) Chebyshev's Rule
 - B) the Empirical Rule
 - C) a z -score
 - D) the percentiles

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Based on the five-number summary, the overall shape of the lengths of these reigns appears to be:

- A) right-skewed.
- B) symmetric.
- C) left-skewed.
- D) Data shape can only be discerned from visual methods.