

Directions: Do not write on this exam. You may use your calculator and the formula sheet from my web page. Good Luck.

1. If I find the mean and the standard deviation for a sample of 36 exam grades from a class of 200, each of these values are called:

A) Parameters B) Statistics C) Inferences D) Qualitative data E) Discrete

2. To study the earnings of working 18 – 20 year olds in Miami/Dade County, I collected a random sample of tax returns for 36 working 18 – 20 year olds. In this study, my population is the:

A) Earnings of all working 18 – 20 yr olds in Miami/Dade
B) Earnings of the 36 18 – 20 yr olds in the study
C) Earnings of all 18 – 20 yr olds in the world
D) Earnings of working 18 – 20 yr olds in the world

3. Which of the following statements are true?

A) The mean is used most often among measures of the center, and the standard deviation is used most often for a measure of variation.
B) The range is often used in manufacturing settings when a sampling from a production line.
C) The mode is best used for non-numerical data.
D) The median is used when we have extreme data values present.
E) All of the statements are true.

4. The number of traffic citations issued by a sample of police agencies last year is an example of a _____ variable.

A) Robust B) Inferential C) Discrete D) Qualitative E) Continuous

5. Which exam grade is relatively better, a 62 on an exam with a mean of 70 and a standard deviation of 6 or a 75 on an exam with a mean of 80 and a standard deviation of 3?

A) The 62 is better because it has a lower z-score
B) The 75 is better because it has a lower z-score
C) The 75 is better because it has a higher z-score
D) The 62 is better because it has a higher z-score

6. According to the manufacturer, a single AA battery will work for an average of 10 hours with a standard deviation of 0.43 hours in your MP3 player. If you want to be able to listen to your MP3 player for the entire time you are on the plane to California (an 8 hr flight), use Chebyshev's theorem to decide if you should bring two batteries or just one. Hint: consider the interval [8hrs, 12hrs]
- A) One battery should be fine because at least 95% will last 8 hrs or more.
 - B) Two batteries would be best because as little as 75% will last 8hrs or more.
 - C) One battery should be fine because more than 99% will last 8hrs or more.
 - D) One battery should be fine because at least 89% will last 8 hrs or more.
 - E) Bring one battery it should last ten hours since that is the average.
7. Calculate the standard deviation for the following set of numbers: 2, 7, 9, 8, 7, 3, 3, and 11.
- A) 10.500 B) 9.000 C) 30.008 D) 3.240
8. A study of brain tumors takes measurements that consist of the volume of removed tumors in patients. If the sample used in this study involves just four tumors would it be acceptable to use the range as a measure of variation?
- A) No, the range should never be used for small data sets.
 - B) Yes, the range is ok for small data sets and it's easy to interpret.
 - C) No, the variance is simpler and easier to interpret.
 - D) Yes, the range is always a good measure of variability.
9. If the population median is 196 and the population mean is 137, which statement is true:
- A) The population distribution is most likely right-skewed (right-tailed).
 - B) The population is most likely symmetric.
 - C) The population is most likely bell (normal) shaped.
 - D) The population is most likely left-skewed (left-tailed).
10. Which do you think has more variation: the heights of 32 runway super models, the heights of 32 women from the WNBA basketball league, or the heights of 32 randomly selected women from a local mall?
- A) Super models B) WNBA women C) Mall goers D) Not enough info

11. If the average height for men is 68 inches, what units will the variance have? standard deviation?

- A) inches squared; inches B) inches; inches C) inches; inches squared
 D) We Need More Information E) Square root inches; inches

12. Consider the frequency table below, what percent of men weigh are shorter than 68 inches?

Heights	Frequency
60 – 63.9	11
64 – 67.9	33
68 – 71.9	52
72 – 75.9	70
76 – 79.9	10

- A) 44% B) 54.5% C) 2.5% D) 25% E) 80%

13. If the average fuel efficiency for American cars is 21 mpg with a standard deviation of 2.2 mpg, is the H2 unusually inefficient with an fuel efficiency of 14 mpg? (note: these numbers are made up)

- A) No, using the Empirical rule we can tell there are a lot of makes that are more inefficient
 B) Yes, it's unusually low efficiency because it's 3.18 standard deviations below the mean
 C) No, it's not unusually low because it's only 3.18 standard deviations below average
 D) Yes, it's below average; therefore, it's unusually inefficient.

14. Calculate the Mean, Median, and Mode for the following numbers: 30, 45, 30, 55, 56, 23, 20, 90

- A) 43.6, 40, 30 B) 49.8, 35, 30 C) 43.6, 37.5, 30 D) 43.6, 55.5, 30

15. If above you found out that the 90 was supposed to be a 60 (i.e.- it was miss reported), so we put a 60 in its place, what will be most affected by this change?

- A) The Median B) The Mean C) The Mode D) Not enough info

16. If the largest number in a data set is 36 and the smallest number is 4, what class width will you use for a frequency table with 8 classes?

- A) 6 B) 32 C) 5 D) 4 E) not enough info

17. If a relative frequency table was created for 30 data values, what is the relative frequency for a class that has 6 values in it?

- A) 0.20 B) 5 C) 0 .05 D) 180 E) 0.18

Answers

- 1.) B
2.) A
3.) E
4.) C
5.) D
6.) A
7.) D
8.) B
9.) D
10.) C
11.) A
12.) D
13.) B
14.) C
15.) B
16.) D
17.) A