**AFM: Statistics Review Name:**

1. Create a frequency and relative frequency table for this data. Group the data into classes starting with a lower class boundary of 50 and an interval of 10. Create a histogram using the relative frequency.

66, 110, 79, 86, 95, 112, 110, 120, 89, 75, 82, 110, 56, 78, 84, 56, 87, 89, 90, 93, 65, 78, 56, 63

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| SCORE | FREQ. | REL. FREQ. |
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2. Find mean, median, and mode for the given data. If this data represented money earned per night at waitressing job, which would you use to get someone to accept a job there? Why?

66, 110, 79, 86, 95, 112, 110, 120, 89, 75, 82, 110

3. To pass, you need an average of 70. You score 65, 73, 59, and 62 on the first four tests. What do you need to make on the fifth test to pass?

4. Make a box and whisker plot. Label all values clearly. 15, 56, 78, 84, 56, 87, 89, 90, 93, 65, 78, 56, 63

5. Find the range and standard deviation for the data (use your calc):

7, 8, 10, 10, 12, 12, 12, 15, 16, 18

Mean\_\_\_\_\_\_\_\_\_\_\_ st. dev. \_\_\_\_\_\_\_\_\_\_\_\_\_

6. **USE THE EMPIRICAL RULE:** Assume that a normal distribution has a mean of 40 and a standard deviation of 6.

a. Find the percentage below 34?

b. Find the percentage above 52?

c. Find the percentage between 28 and 58?

d. Max score to be in bottom 2.5%?

7. USE YOUR CALCULATOR. **SHOW CALCULATOR SET UP.** A normal distribution has a mean of 220 and a standard deviation of 12.7.

a. Find the percentage between 210 and 230? b. Find the percentage above 216?

c. Find the percentage below 249.6? d. Max score to be in bottom 17%?

e. Min score to be in top 28%?

8. **USE THE STANDARD NORMAL PROBABILITY TABLE TO ANSWER THE FOLLOWING**.

The average grade on a final exam was an 82 with a standard deviation of 4 points.

a. Probability of scoring less than an 80. b. Prob of getting higher than a 75

c. Prob of getting between 72 and 89 d. Grade needed to be in top 22%

9. If you score a 90 on the final examination that has a mean of 82 and a standard deviation of 5, what is your z-score?

10. If the mean is 80, standard deviation is 7 and z = 1.2, find the corresponding raw score.

11. The mean price of a standard digital camera is $150 with a standard deviation in price of $4.17. The mean price for a house renovation is $93,500 with a standard deviation of $3400. Calculate the coefficient of variation for each set of prices. Whose item is more volatile?

12. Experiment or observational study? EXPLAIN YOUR ANSWER.

a. A researcher notices that people who work outside get skin cancer more frequently than people who work inside.

b. A researcher assigns one group to a normal exercise routine, and another group to not do any exercise, then observes their sleeping patterns.

13. Identify the type of sampling present in each of the following scenarios. EXPLAIN your reasoning.

a. The FVHS students are divided by grade level and 4 students from each class are chosen to win a prize.

b. The FVHS students are divided by grade level, then all of the sophomores are chosen to win a prize.

15. Does bias exist? Explain.

a. A researcher asks the first students in line for the football game their opinion about sports.

b. A researcher asks a random sample of students, “Considering the lack of textbooks in our schools and a shortage of teachers, should we spend additional money on high school sports?”

c. A researcher asks a random sample of students in the courtyard, “On a scale of 1-10, how much do you like sports?”

16. Students who score in the top 5% of scorers on the Stanford-Binet IQ test are identified as gifted and talented. If the mean score on the test is 110 with a standard deviation of 15, find the score necessary to be identified as gifted and talented.

17. Convert the following z – scores into probabilities using the standard normal table:

z = 1.43 z = –0.03 z = 3.21 z = –2.97 z = –1.89

18. Convert the following probabilities into z – scores using the standard normal table:

Bottom 45% top 11% bottom 23% top 16.5% top 62.5%

19. Mrs. Barber decides to curve her classes. She decided that the top 15% get As, the next 25% get B’s, the middle 20% get C’s, the next 25% get D’s, and the lowest 15% get F’s. If the average in the class is an 84 with a standard deviation of 5, find the following using your calculator:

a. Highest score to still end up with an F b. Lowest score to receive an A

c. Range of scores that result in a C d. Range of scores that result in a B

20. Create a back-to-back stem-and-leaf plot.



