

STATISTICS 2023

NAME, PRINT IN INK _____

EXAM ONE

SIGNATURE, IN INK _____

Spring 2007

CWID IN INK _____

Once this exam is graded and returned to you, retain it for grade verification.

TRUE OR FALSE. Answer with a capital T or F.

(3 points each)

_____ 1. The mean, the 50th percentile and the 2nd quartile of the data set are always the same value for any data set.

_____ 2. If the relative frequency of a category of data is 15% in a data set with 300 observations, then there are 35 observations in that category.

_____ 3. The probability of the complement of an event is one minus the probability of the event.

_____ 4. If an individual data value of 38 is from a population with mean of 36 and standard deviation of 4, then the associated z-score is equal to -0.5.

_____ 5. The conditional probability of an event A conditioned upon the occurrence of another event B is equal to the marginal probability of event A only if events A and B are independent.

_____ 6. If a data set is mound shaped with a mean of 130 and a standard deviation of 5, then almost all of the data is between 115 and 140.

_____ 7. The probability of some event is a number between the values of 0 and 1, but cannot be 0 or 1.

STATE THE ANSWER. State the answer on the line given.

(3 points each)

For the remaining questions on this page consider the following data. The changes in percent of a particular stock for eight trading days were the following:

1.6, 2.8, -3.1, 0.8, 1.9, 2.0, -2.2, 0.4

_____ 8. What is the numerical value of the mean of the sample of daily changes for the stock?

_____ 9. What is the numerical value of the sum of squares for the sample of daily changes for the stock?

_____ 10. What is the numerical value of the sample variance for the sample of daily changes for the stock? Round your answer to one digit past the decimal.

STATE THE ANSWER. State the answer on the line given.

(3 points each)

_____ 11. In a data set with 3000 observations if there are 770 ones, 1230 twos and 1000 threes, what is the median of the data set?

_____ 12. If from a data set with 888 observations the sum of squares is 2,222 and the sum is 333, what is the numerical value of the sample mean? State your answer with three digits past the decimal.

_____ 13. If from a data set with 888 observations the sum of squares is 2,222 and the sum is 333, what is the numerical value of the sample variance? Round your answer to two digits past the decimal.

_____ 14. If a data set produces a first quartile of 52 and a third quartile of 84, then what percent of the data are between 52 and 84?

_____ 15. If a data set with unknown shape has a mean of 410 units and a standard deviation of 18 units then at least what percent of the data would fall into the interval (392, 428)?

The annual expenses of a student at OSU has a mound-shaped distribution with a mean of \$16,050 and a standard deviation of \$460. Use this information to answer the remainder of the questions on this page.

_____ 16. Approximately what percent of students have annual expenses between \$15,130 and \$16,970?

_____ 17. About 16% of students have annual expenses more than how much?

_____ 18. What approximate percent of students have annual expenses less than \$16,510?

STATE THE ANSWER. State the answer on the line given.

(3 points each)

_____ 19. Suppose a sample is drawn from a distribution with mean 75 and standard deviation 5. What is the z-score corresponding to an individual value of 73? State your answer with one digit past the decimal.

_____ 20. Suppose a sample is drawn from a distribution with mean 75 and standard deviation 5. What is the individual value corresponding to the z-score of 1.24?

Answer question 21-26 with the following data

The Big Bend National Park (Terlingua, TX) offers different Guided Day Trips for visitors. Listed below are five randomly selected costs for one-day trips at various locations.

Location	Cost for One Person
Colorado Canyon	\$125
Desert View Trip	\$115
Mariscal Canyon	\$140
Santa Elena	\$130
Temple Canyon	\$140

_____ 21. What is the numerical value of the mean for the above prices?

_____ 22. What is the numerical value of the median for the above prices?

_____ 23. What is the numerical value of the mode for the above prices?

_____ 24. What is the numerical value of the sum of the squares for the above prices?

_____ 25. What is the numerical value of the square of the sum for the above prices?

_____ 26. What is the numerical value for the standard deviation of the above prices? Round your answer to one digit past the decimal.

STATE THE ANSWER. State the answer on the line given.

(3 points each)

_____ 27. You go to a library that has 4236 books. Suppose 2453 books are textbooks, 435 books are novels, 728 books are dictionaries and the rest of them are comics. If you randomly pick up one book from the library, what is the probability that you will not get a textbook? Round your answer to two digits past the decimal.

_____ 28. Of the books in Stillwater Public Library 80% are novels. Thirty percent of the novels are donated by the public. Based on this information, what percent of books in the Stillwater Public Library are novels and are donated by the public?

Again in Big Bend National Park, the administrating officer surveyed 400 visitors and recorded their preferences for the Guided Day Trip. They obtained the data given in the table below. **Do not reduce fractional answers. State all of your answers as ratio fractions. Do not state decimal fraction answers.**

	Interested in the Trip		Not Interested in the Trip	
	Male	Female	Male	Female
Single	72	73	25	50
Married	78	47	20	35

_____ 29. What is the probability that a randomly selected person is interested in the trip?

_____ 30. Assume a person is randomly selected from all single males, what is the probability that he will be interested in the trip?

_____ 31. What is the probability that a randomly selected person is a married male and interested in the trip?

_____ 32. If a married person is selected, what is the probability that the person is male?

_____ 33. What is the probability of randomly selecting a person who is female or is not interested in the trip?