

STA1001 Final Exam Review

Please note that this is a final exam review and is provided to you to give an idea of the scope of the exam; it is not simply the final exam with numbers changed. Questions may appear on the final exam that are not on this review and vice versa.

1. A number that is calculated from all of the elements of a population is called a _____.
2. Observations, measurements, and responses to a survey are called _____.
(a) symmetric (b) means (c) data (d) frequency (e) not given
3. A quantitative variable is also known as a _____ variable.
(a) nominal (b) numerical (c) categorical (d) qualitative (e) Not given
4. Select the correct level of measurement for the following variable.
The height of a palm tree
(a) nominal (b) ordinal (c) interval (d) ratio (e) rational
5. A neutral treatment that has no "real" effect on the dependent variable is called a _____. A sugar pill is an example of this.
6. Use the z-score formula, $Z = \frac{x - \mu}{\sigma}$, given that $x = 16$, $\sigma = 2$, and $z = 1$.

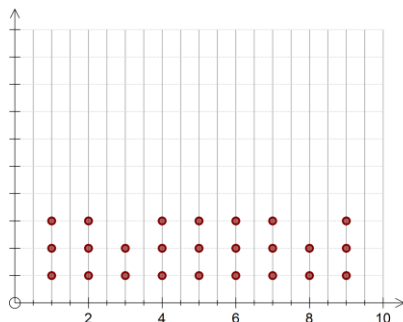
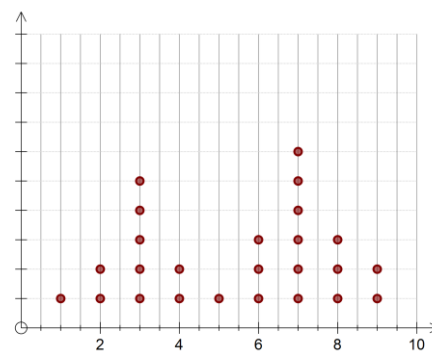
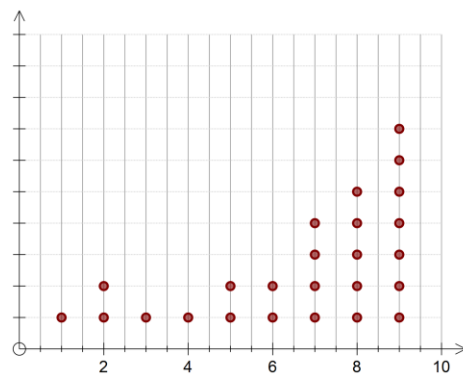
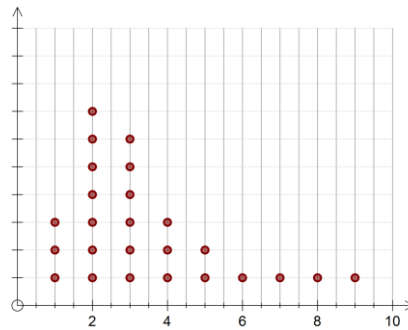
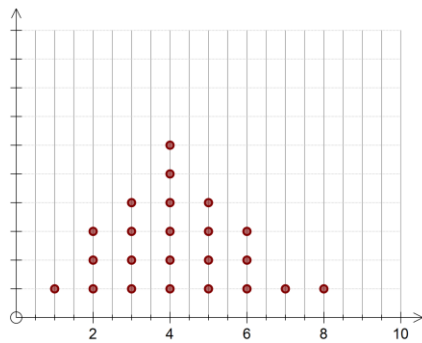
Use the following for numbers 7 – 12.

A sample of test grades for a class were as follows:

72, 90, 99, 95, 60, 52, 84, 76, 57, 93

7. Find the mean test grade.
8. Find the median test grade.
9. Find the mode(s), if there are any.
10. Find the range for these grades?
11. Find the standard deviation for these grades.
12. Construct a boxplot for the test grades.
13. Construct a relative frequency table for the test grades. Let the lowest class (grouping or bin) be 50 – 59.
14. Construct a relative frequency histogram for the test grades using the table you constructed in 12.
15. To find the _____, subtract Q_1 from Q_3 .
(a) outlier (b) minimum (c) maximum (d) IQR (e) Not given

16. Match each dotplot with the best description of the data.
 (a) skewed left (b) skewed right (c) bimodal (d) approximately normal (e) uniform

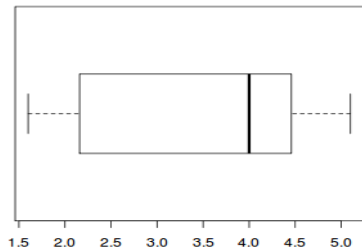


Use the following for numbers 17 – 18. The number of hours that students spent on homework in one week was recorded down in the frequency table below.

Hours of Homework	Frequency
1	3
2	4
3	7
4	7
5	5
6	3
7	2

17. What was the sample size?
18. What percentage of students spent at least 5 hours on HW?

19. For the following boxplot, approximately _____ percent of the data lies between 4.0 and 4.5?



20. What percent of the area under the normal curve lies to the left of the mean?
21. On a psychology exam, the grades were normally distributed and the middle 95% of the grades fell between 29 and 85. What was the mean grade?
22. Grades on a test were normally distributed with a mean of 72 and a standard deviation of 7. If 500 students took this test, how many scored above 79?
23. The weight of cats is normally distributed with a mean of 11.2lb and a standard deviation of 1.3lb. What percent of cats weigh between 8.6lb and 12.5lb?
- Use the following for numbers 21 – 22.
Let $M = \{a, b, c, d, e, f\}$, $N = \{a, c, e, g, h\}$
24. Find $M \cap N$.
25. Find $M \cup N$.
26. Translate the following comparison into an inequality. Let x represent the weight of a hamburger. A hamburger that weighs no more than 8 ounces.
27. The set of elements that represents all possible outcomes of a particular experiment is called the _____ of the experiment.
28. When a coin is flipped, there are two possible outcomes. When one, six-sided die is rolled, there are six possible outcomes. If a coin is flipped, and then a six-sided die is rolled, how many outcomes are possible?
29. If the probability that Shanae will respond favorably to Chad's marriage proposal is 0.963, what is the probability that Shanae will *not* respond favorably?
30. A coin is tossed 800 times and the coin comes up heads 524 times. Find the relative frequency probability of the coin coming up heads.
31. A six sided die is rolled, find $P(\text{even number or multiple of 3})$.
32. A bag contains 12 gold coins and 10 silver coins. Two coins are randomly selected without replacement. Find $P(\text{first is gold and second is silver})$.
33. The boss invited eighty employees to a party at his home. Nobody really wanted to attend, and only thirty showed up. What percent of employees invited actually showed up at the party?

Answer numbers 34 - 35 from the following two-way table.

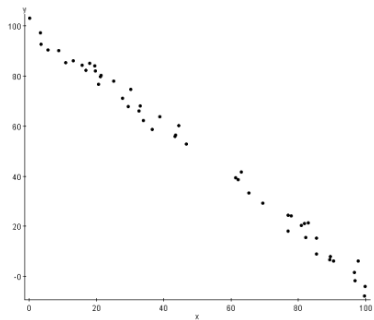
	Male	Female
Pizza	23	18
Chicken Wings	34	19

34. How many males responded to the survey?
35. If one person is randomly selected, what is the probability that it is a female who prefers chicken wings?

MATCHING: Next to each word description, fill-in the symbol that best matches that word description.

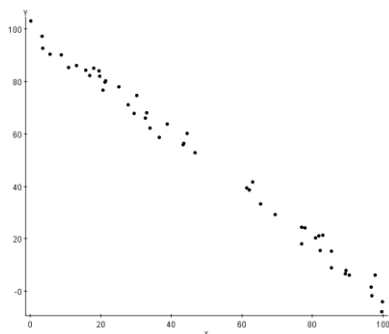
Symbols: n N \bar{x} μ σ s r Q_1 Q_2 Q_3 IQR

36. _____ Correlation coefficient for a linear regression
37. _____ The mean of a population
38. _____ The mean of a sample
39. _____ The lower quartile
40. _____ The upper quartile
41. _____ The number of data items in a sample
42. _____ The number of data items in a population
43. _____ The interquartile range
44. _____ The standard deviation of a population
45. _____ The standard deviation of a sample
46. What is the best description of the pattern in the following scatterplot.

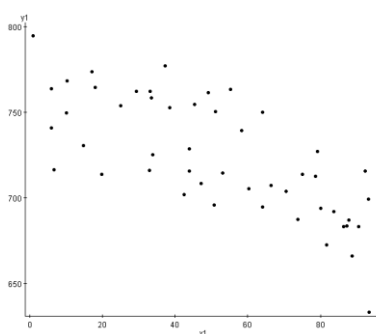


- (a) strong positive linear relationship
- (b) weak negative linear relationship
- (c) positive exponential relationship
- (d) Negative exponential relationship
- (e) strong negative linear relationship

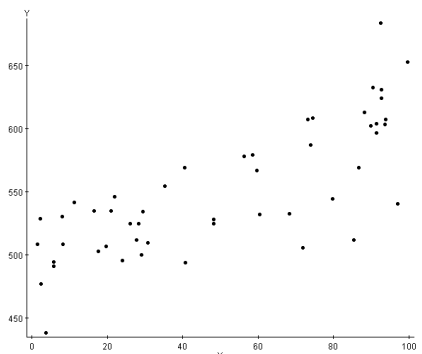
47. Match the following graphs with their corresponding correlation coefficient value:



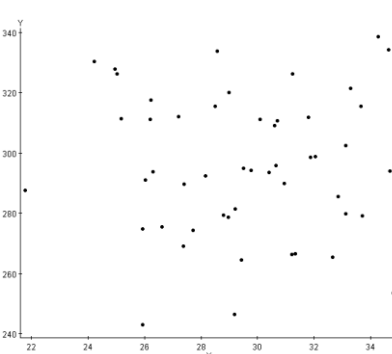
1



2



3



4

Graph has a correlation coefficient of -0.728 between the two variables.

Graph has a correlation coefficient of -0.015 between the two variables.

Graph has a correlation coefficient of -0.996 between the two variables.

Graph has a correlation coefficient of 0.778 between the two variables.

48. Find the slope for the line that models the following data for a woman's weight.

Age	Weight
23	145
30	180
37	215

Use the following for numbers 49 and 50.

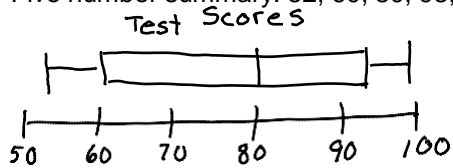
For the equation $v = -3,000y + 25,000$, v represents the value of a car and y represents the age of a car in years.

49. Find the slope of the line.

50. How much is the car worth (cost) when it is brand new?

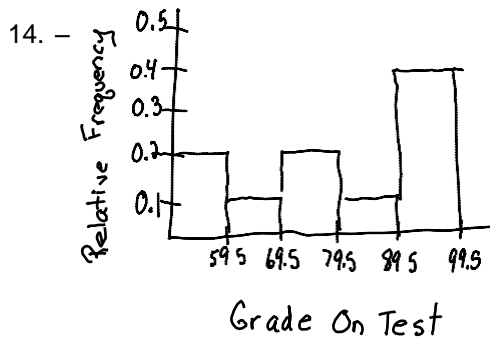
Answers

1. Parameter
2. Data
3. Numerical
4. Ratio
5. Placebo
6. 14
7. 77.8
8. 80
9. No mode
10. 47
11. 17.0
12. Five number summary: 52, 60, 80, 93, 99



13.

Grade	Frequency
90 – 99	4
80 – 89	1
70 – 79	2
60 – 69	1
50 – 59	2



15. IQR
16. Approximately normal, skewed right
Skewed left, bimodal,
Uniform
17. 31
18. 0.323
19. 25%
20. 50%
21. 57
22. 80
23. 81.5%
24. {a, b, c, d, e, f, g, h}
25. {a, b, c, d, e, f, g, h}
26. $x \leq 8$
27. Sample space
28. 12
29. 0.037
30. 0.655

- 31. $\frac{2}{3}$
- 32. 0.260
- 33. 0.375
- 34. 57 males
- 35. 0.202
- 36. r
- 37. μ
- 38. \bar{x}
- 39. Q_1
- 40. Q_3
- 41. n
- 42. N
- 43. IQR
- 44. σ
- 45. s
- 46. strong negative linear relationship
- 47. 2, 4, 1, 3
- 48. 5
- 49. -3,000
- 50. \$25,000