

Name _____

School _____

Team Member (circle one) YES NO

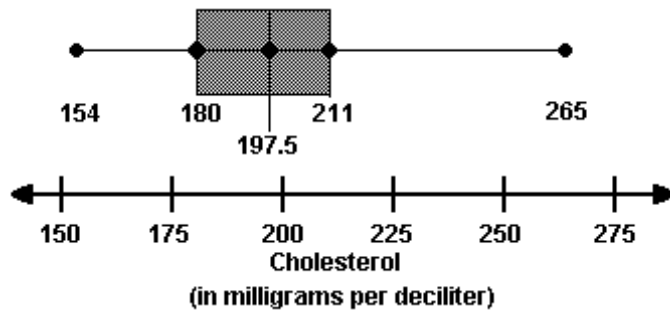
1) For which confidence interval for the difference in the means $\mu_1 - \mu_2$, would you reject the null hypothesis?

- A) (-1.673, 1.892)
- B) (-2.209, 0.209)
- C) (-1.968, 1.561)
- D) (-2.001, -1.873)
- E) NOTA

2) If Data A has a correlation coefficient of $r = -0.991$, and Data B has a correlation coefficient of $r = 0.991$, which correlation is correct? Both samples have 50 pairs of data.

- A) Data A has a stronger linear correlation than Data B.
- B) Data A has a weaker linear correlation than Data B.
- C) Data A and Data B have the same strength in linear correlation.
- D) Both Data A and Data B lack any linear correlation
- E) NOTA

3) Use the box-and-whisker plot below to determine which statement is accurate.



- A) One half of the cholesterol levels are between 180 and 197.5.
- B) About 75% of the adults have cholesterol levels less than 180.
- C) About 25% of the adults have cholesterol levels of at least 211.
- D) One half of the cholesterol levels are between 180 and 211.
- E) NOTA

4) The top 14 speeds, in miles per hour, for Pro-Stock drag racing over the past two decades are listed below. Find the mean speed.

181.1 202.2 190.1 201.4 191.3 201.4 192.2
 201.2 193.2 201.2 194.5 199.2 196.0 196.2

- A) 196.1
- B) 195.8
- C) 201.2
- D) 210.9
- E) NOTA

- 5) SAT verbal scores are normally distributed with a mean of 489 and a standard deviation of 93. Use the Empirical Rule to determine what percent of the scores lie between 303 and 582.
- A) 68%
 - B) 81.5%
 - C) 34%
 - D) 83.9%
 - E) NOTA
- 6) You are dealt two cards successively without replacement from a standard deck of 52 playing cards. Find the probability that the first card is a two and the second card is a ten. Round your answer to three decimal places.
- A) 0.250
 - B) 0.500
 - C) 0.994
 - D) 0.006
 - E) NOTA
- 7) In a survey of college students, 880 said that they have cheated on an exam and 1721 said that they have not. If one college student is selected at random, find the probability that the student has cheated on an exam.
- A) $\frac{880}{2601}$
 - B) $\frac{1721}{2601}$
 - C) $\frac{2601}{1721}$
 - D) $\frac{2601}{880}$
 - E) NOTA
- 8) Sixty-five percent of men consider themselves knowledgeable football fans. If 12 men are randomly selected, find the probability that exactly two of them will consider themselves knowledgeable fans.
- A) 0.001
 - B) 0.109
 - C) 0.65
 - D) 0.167
 - E) NOTA
- 9) The data below are the temperatures on randomly chosen days during a summer class and the number of absences on those days. Find the equation of the regression line for the given data.

Temperature, x	72	85	91	90	88	98	75	100	80
Number of absences, y	3	7	10	10	8	15	4	15	5

- A) $\hat{y} = 0.449x + 30.27$
- B) $\hat{y} = 30.27x - 0.449$
- C) $\hat{y} = 0.449x - 30.27$
- D) $\hat{y} = 30.27x + 0.449$
- E) NOTA

10) Find the critical χ^2 -values to test the claim $\sigma^2 = 4.3$ if $n = 12$ and $\alpha = 0.05$.

- A) 4.575, 19.675
- B) 3.053, 24.725
- C) 2.603, 26.757
- D) 3.816, 21.920
- E) NOTA

11) Which of the following probabilities for the sample points A, B, and C could be true if A, B, and C are the only sample points in an experiment?

- A) $P(A) = 1/8, P(B) = 1/7, P(C) = 1/10$
- B) $P(A) = 0, P(B) = 1/14, P(C) = 13/14$
- C) $P(A) = -1/4, P(B) = 1/2, P(C) = 3/4$
- D) $P(A) = 1/4, P(B) = 1/4, P(C) = 1/4$
- E) NOTA

12) For the data below, construct a frequency distribution using five classes. Describe the shape of the distribution. The data set: systolic blood pressures of 20 randomly selected patients at a blood bank

135 120 115 132 136 124 119 145 98 110
125 120 115 130 140 105 116 121 125 108

- A) symmetric
- B) skewed to the right
- C) skewed to the left
- D) uniform
- E) NOTA

13) The table below summarizes of the weights of Skittles (in grams) for the Skittles in a one pound bag. What is the class width of the classes?

Weight	Frequency
0.7585-0.8184	1
0.8185-0.8784	1
0.8785-0.9384	1
0.9385-0.9984	3
0.9985-1.0584	157
1.0858-1.1184	171
1.1185-1.1784	8

- A) 0.408
- B) 0.4
- C) 0.059
- D) 0.06
- E) NOTA

- 14) A sample of 158-cell phone users were asked how many calls per day they received on their cell phones. The results are given below. Determine the third quartile interval.

Calls Received	Frequency
8 - 11	18
12 - 15	23
16 - 19	38
20 - 23	47
24 - 27	32

- A) 16 - 19
 B) 12 - 15
 C) 20 - 23
 D) 24 - 27
 E) NOTA
- 15) For the following data, approximate the mean miles per day.

Miles (per day)	Frequency
1-2	19
3-4	24
5-6	28
7-8	3
9-10	15

- A) 4.8
 B) 5.3
 C) 6.0
 D) 4.3
 E) NOTA
- 16) In an area of the Midwest, records were kept on the relationship between the rainfall (in inches) and the yield of wheat (bushels per acre). Which is the best predicted value for y given $x = 9.1$?

Rain fall (in inches), x	10.5	8.8	13.4	12.5	18.8	10.3	7.0	15.6	16.0
Yield (bushels per acre), y	50.5	46.2	58.8	59.0	82.4	49.2	31.9	76.0	78.8

- A) 43.9
 B) 44.6
 C) 44.1
 D) 44.4
 E) NOTA
- 17) A physics exam consists of 9 multiple-choice questions and 6 open-ended problems in which all work must be shown. If an examinee must answer 5 of the multiple-choice questions and 3 of the open-ended problems, in how many ways can the questions and problems be chosen?
- A) 261,273,600
 B) 2520
 C) 810
 D) 1814400
 E) NOTA

- 18) The probability that an individual is left-handed is 0.13. In a class of 70 students, what is the mean and standard deviation of the number of left-handers in the class?
- A) mean: 70; standard deviation: 2.8137164
 - B) mean: 70; standard deviation: 3.01662063
 - C) mean: 9.1; standard deviation: 2.8137164
 - D) mean: 9.1; standard deviation: 3.01662063
 - E) NOTA
- 19) According to police sources a car with a certain protection system will be recovered 87% of the time. Find the probability that 4 of 7 stolen cars will be recovered.
- A) 0.87
 - B) 0.044
 - C) 0.571
 - D) 0.13
 - E) NOTA
- 20) Find the area under the standard normal curve between $z = 1.5$ and $z = 2.5$.
- A) 0.9816
 - B) 0.9938
 - C) 0.0606
 - D) 0.9332
 - E) NOTA
- 21) The owner of a convenience store has determined that their daily revenue has mean \$7200 and standard deviation \$1200. The daily revenue totals for the next 30 days will be monitored. What is the probability that the mean daily revenue for the next 30 days will be between \$7000 and \$7500?
- A) 0.7333
 - B) 0.9147
 - C) 0.8186
 - D) 0.2667
 - E) NOTA
- 22) A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. If the dean wanted to estimate the proportion of all students receiving financial aid to within 1% with 95% reliability, how many students would need to be sampled?
- A) 4742
 - B) 2248
 - C) 93
 - D) 9293
 - E) NOTA
- 23) A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 72 statistics students generated the following confidence interval: (0.438, 0.642). Using the information above, what size sample would be necessary if we wanted to estimate the true proportion to within 4% using 95% reliability?
- A) 601
 - B) 625
 - C) 597
 - D) 577
 - E) NOTA

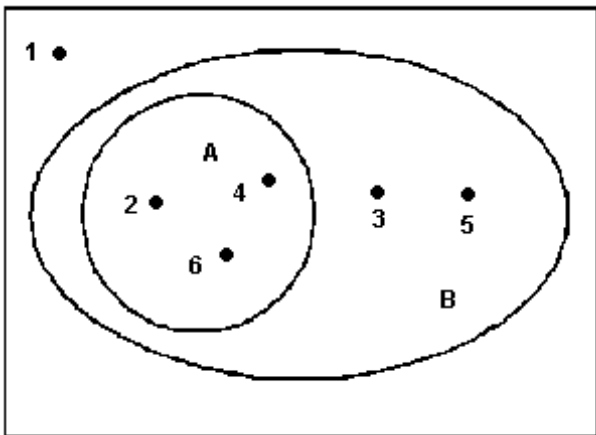
- 24) Thirty-five sophomores, 27 juniors and 50 seniors are randomly selected from 522 sophomores, 384 juniors and 346 seniors at a certain high school. What sampling technique is used?
- A) systematic
 - B) stratified
 - C) cluster
 - D) convenience
 - E) random
 - F) NOTA

- 25) Health care issues are receiving much attention in both academic and political arenas. A sociologist recently conducted a survey of citizens over 60 years of age whose net worth is too high to qualify for government health care but who have no private health insurance. The ages of 25 uninsured senior citizens were as follows:

68 73 66 76 86 74 61 89 65 90 69 92 76
 62 81 63 68 81 70 73 60 87 75 64 82

Find Q_3 of the data.

- A) 71.5
 - B) 81.5
 - C) 82
 - D) 81
 - E) NOTA
- 26) The following Venn diagram is for the six sample points possible when rolling a fair die. Let A be the event rolling an even number and let B be the event rolling a number greater than 1.



Which of the following events describes the event rolling a 1?

- A) B^c
- B) B
- C) $A \cup B$
- D) A^c
- E) NOTA

- 27) A random variable X is normally distributed with $\mu = 60$. Convert the value of X to a Z -score, if the standard deviation is as given. $X = 45$; $\sigma = 4$
- A) -4
 - B) 3.75
 - C) -3.75
 - D) 4
 - E) NOTA

- 28) To play the lottery in a certain state, a person has to correctly select 5 out of 45 numbers, paying \$1 for each five-number selection. If the five numbers picked are the same as the ones drawn by the lottery, an enormous sum of money is bestowed. What is the probability that a person with one combination of five numbers will win? What is the probability of winning if 100 different lottery tickets are purchased?

- A) $\frac{1}{5,864,443,200}$; $\frac{1}{58,644,432}$
- B) $\frac{1}{146,611,080}$; $\frac{10}{14,661,108}$
- C) $\frac{1}{8,145,060}$; $\frac{1}{814,506}$
- D) $\frac{1}{1,221,759}$; $\frac{100}{1,221,759}$
- E) NOTA

- 29) Assume that the heights of men are normally distributed with a mean of 70.1 inches and a standard deviation of 2.8 inches. If 64 men are randomly selected, find the probability that they have a mean height greater than 71.1 inches.
- A) 0.0021
 - B) 0.9005
 - C) 0.9979
 - D) 0.025
 - E) NOTA

- 30) Find the standard error of estimate, s_e , for the data below, given that $\hat{y} = 2x + 1$.

x	1	2	3	4
y	3	5	7	9

- A) 2
- B) 0
- C) 3
- D) 1
- E) NOTA