

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**Solve the problem.**

- 1) A study of the amount of time it takes a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time is less than 8.9 hours. 1) _____
- A) 0.9756 B) 0.9589 C) 0.9608 D) 0.4276

- 2) A history teacher assigns letter grades on a test according to the following scheme: 2) _____
- A: Top 10%
 B: Scores below the top 10% and above the bottom 60%
 C: Scores below the top 40% and above the bottom 20%
 D: Scores below the top 20% and above the bottom 10%
 F: Bottom 10%

Scores on the test are normally distributed with a mean of 67 and a standard deviation of 13.2. Find the numerical limits for each letter grade.

- A) A: Above 84 B) A: Above 79
 B: Between 70 and 84 B: Between 70 and 79
 C: Between 56 and 69 C: Between 56 and 69
 D: Between 50 and 55 D: Between 50 and 55
 F: Below 50 F: Below 50
- C) A: Above 79 D) A: Above 84
 B: Between 70 and 79 B: Between 74 and 84
 C: Between 56 and 69 C: Between 56 and 73
 D: Between 52 and 55 D: Between 50 and 55
 F: Below 52 F: Below 50
- 3) Scores on an English test are normally distributed with a mean of 31.5 and a standard deviation of 7.3. Find the score that separates the top 59% from the bottom 41% 3) _____
- A) 33.2 B) 29.8 C) 27.2 D) 35.8

Find the indicated probability.

- 4) The table below shows the soft drinks preferences of people in three age groups. 4) _____

	cola	root beer	lemon-lime
under 21 years of age	40	25	20
between 21 and 40	35	20	30
over 40 years of age	20	30	35

If one of the 255 subjects is randomly selected, find the probability that the person drinks root beer given that they are over 40.

- A) $\frac{2}{17}$ B) $\frac{6}{17}$
 C) $\frac{2}{5}$ D) None of the above is correct.

- 5) The participants in a television quiz show are picked from a large pool of applicants with approximately equal numbers of men and women. Among the last 10 participants there have been only 2 women. If participants are picked randomly, what is the probability of getting 2 or fewer women when 10 people are picked? 5) _____
 A) 0.0537 B) 0.0547 C) 0.0439 D) 0.0107
- 6) The volumes of soda in quart soda bottles are normally distributed with a mean of 32.3 oz and a standard deviation of 1.2 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 32 oz? 6) _____
 A) 0.0987 B) 0.4013 C) 0.3821 D) 0.5987
- 7) A multiple choice test has 10 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 3 questions correctly? 7) _____
 A) 0.2816 B) 0.2503 C) 0.0021 D) 0.7497 E) 0.0156
- 8) A manufacturing process has a 70% yield, meaning that 70% of the products are acceptable and 30% are defective. If three of the products are randomly selected, find the probability that all of them are acceptable. 8) _____
 A) 0.027 B) 0.343 C) 0.429 D) 2.1
- 9) A sample of 4 different calculators is randomly selected from a group containing 38 that are defective and 23 that have no defects. What is the probability that all four of the calculators selected are defective? 9) _____
 A) 0.1506 B) 0.1414 C) 8.3360 D) 0.1342
- 10) Suppose that in a certain population 45% of people have type O blood. A researcher selects people at random from this population. What is the probability that there is a person with type O blood among the first 8 people checked? 10) _____
 A) 0.0069 B) 0.9916 C) 0.0017 D) 0.0084 E) 0.0152
- 11) The probability that Luis will pass his statistics test is 0.40. Find the probability that he will fail his statistics test. 11) _____
 A) 0.67 B) 2.50 C) 0.60 D) 0.20
- 12) A class consists of 82 women and 40 men. If a student is randomly selected, what is the probability that the student is a woman? 12) _____
 A) $\frac{1}{122}$ B) $\frac{20}{61}$ C) $\frac{41}{20}$ D) $\frac{41}{61}$

- 13) The contingency table below provides a joint frequency distribution for a random sample of patients at a hospital classified by blood type and sex. 13) _____

		Blood Type				Total
		O	A	B	AB	
Sex	F	97	96	23	9	225
	M	78	67	14	6	165
Total		175	163	37	15	390

If a person is selected at random from the sample, find the probability that the person has blood type A and is female.

- A) 0.995 B) 0.589 C) 0.246 D) 0.749 E) 0.427
- 14) In a batch of 8,000 clock radios 8% are defective. A sample of 12 clock radios is randomly selected without replacement from the 8,000 and tested. The entire batch will be rejected if at least one of those tested is defective. What is the probability that the entire batch will be rejected? 14) _____
- A) 0.0833 B) 0.368 C) 0.632 D) 0.0800
- 15) Of the 92 people who answered "yes" to a question, 5 were male. Of the 49 people that answered "no" to the question, 13 were male. If one person is selected at random from the group, what is the probability that the person answered "yes" or was male? 15) _____
- A) 0.745 B) 0.054 C) 0.128 D) 0.78

Use the given degree of confidence and sample data to construct a confidence interval for the population proportion.

- 16) A study involves 634 randomly selected deaths, with 29 of them caused by accidents. Construct a 98% confidence interval for the percentage of all deaths that are caused by accidents. 16) _____
- A) (2.95%, 6.20%)
 B) (3.4%, 5.8%)
 C) (2.64%, 6.50%)
 D) (2.43%, 6.71%)
 E) (3.21%, 5.94%)

Find the mean of the data.

- 17) The local Tupperware dealers earned the following commissions, in dollars, last month. 17) _____

\$2243.95 \$4494.07 \$1759.41
 \$2934.80 \$2850.64 \$4330.66
 \$1333.14 \$2643.61 \$2451.82
 \$3927.47

Round your answer to the nearest cent.

- A) \$3621.20 B) \$3218.84 C) \$2896.96 D) \$2934.80 E) \$2890.96

Construct the indicated confidence interval for the difference between the two population means. Assume that the assumptions and conditions for inference have been met.

- 22) A grocery store is interested in determining whether or not a difference exists between the shelf life of two different brands of doughnuts. A random sample of 100 boxes of each brand was selected and the shelf life in days was determined for each box. The sample results are given below. 22) _____

Brand A	Brand B
$\bar{x} = 2.1$	$\bar{x} = 2.9$
$s = 0.8$	$s = 1.1$
$n = 100$	$n = 100$

Find a 90% confidence interval for $\mu_A - \mu_B$, the difference in mean shelf life between brand A and brand B.

- A) (0.58, 1.03)
- B) (-1.03, -0.58)
- C) (2.1, 2.9)
- D) (-1.53, -0.08)
- E) (0.08, 1.53)

Find the standard deviation for the given data. Round your answer to one more decimal place than the original data.

- 23) 22, 29, 21, 24, 27, 28, 25, 36 23) _____
- A) 4.8 B) 1.6 C) 4.2 D) 2.8

Answer the question.

- 24) A national study reported that 75% of high school graduates pursue a college education immediately after graduation. A private high school advertises that 156 of their 196 graduates last year went on to college. Does this school have an unusually high proportion of students going to college? 24) _____
- A) This school cannot boast an unusually high proportion of students going to college. Their proportion is only 1.48 standard deviations above the mean.
 - B) This school cannot boast an unusually high proportion of students going to college. Their proportion is only 1.19 standard deviations above the mean.
 - C) This school can boast an unusually high proportion of students going to college. Their proportion is 1.19 standard deviations above the mean.
 - D) This school can boast an unusually high proportion of students going to college. Their proportion is 1.78 standard deviations above the mean.
 - E) This school cannot boast an unusually high proportion of students going to college. Their proportion is only 0.89 standard deviations above the mean.

Answer Key

Testname: SAMPLE FINAL EXAM

- 1) C
- 2) A
- 3) B
- 4) B
- 5) B
- 6) B
- 7) B
- 8) B
- 9) B
- 10) B
- 11) C
- 12) D
- 13) C
- 14) C
- 15) A
- 16) C
- 17) C
- 18) C
- 19) C
- 20) C
- 21) D
- 22) B
- 23) A
- 24) A