

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**Find the indicated probability.**

- 1) The table below describes the smoking habits of a group of asthma sufferers. 1) _____

	Nonsmoker	Light smoker	Heavy smoker	Total
Men	395	63	79	537
Women	363	86	67	516
Total	758	149	146	1053

What is the probability that a woman is a nonsmoker?

- A) 0.479 B) 0.703 C) 0.49 D) 0.345 E) 0.720
- 2) You are dealt a hand of three cards, one at a time. Find the probability that your cards are all face cards. 2) _____
- A) 0.012 B) 0.013 C) 0.025 D) 0.250 E) 0.010
- 3) The following contingency table provides a joint frequency distribution for a group of retired people by career and age at retirement. 3) _____

		Age at Retirement				
		50-55	56-60	61-65	Over 65	Total
Career	Attorney	12	48	95	34	189
	College Professor	9	47	75	40	171
	Secretary	21	45	63	49	178
	Store Clerk	18	44	70	50	182
	Total	60	184	303	173	720

Find the probability that the person was an attorney and retired before the age of 61.

- A) 0.067 B) 0.518 C) 0.317 D) 0.326 E) 0.083
- 4) The probability that Luis will pass his statistics test is 0.40. Find the probability that he will fail his statistics test. 4) _____
- A) 2.50 B) 0.60 C) 0.67 D) 0.20

5) A sample of 100 wood and 100 graphite tennis rackets are taken from the warehouse. If 12 wood and 13 graphite are defective and one racket is randomly selected from the sample, find the probability that the racket is wood or defective. 5) _____

- A) 0.125
- B) 0.565
- C) 0.56
- D) There is insufficient information to answer the question.

6) If a person is randomly selected, find the probability that his or her birthday is in May. Ignore leap years. 6) _____

- A) $\frac{1}{31}$
- B) $\frac{1}{12}$
- C) $\frac{31}{365}$
- D) $\frac{1}{365}$

7) College students were given three choices of pizza toppings and asked to choose one favorite. The following table shows the results. 7) _____

toppings	freshman	sophomore	junior	senior
cheese	15	16	20	21
meat	22	21	16	15
veggie	16	15	22	21

If a student responded "meat", what is the probability that they are a junior?

- A) 0.216
- B) 0.073
- C) 0.301
- D) 0.16
- E) 0.276

8) You are dealt a hand of three cards, one at a time. Find the probability that you have at least one queen. 8) _____

- A) 0.068
- B) 0.783
- C) 0.213
- D) 0.204
- E) 0.217

Solve the problem.

9) Here are the commutes (in miles) for a group of six employees. Find the standard deviation. 9) _____

14.7 16.3 34.0 33.7 22.6 16.0

- A) 3141.9
- B) 3540.2
- C) 22.6
- D) 8.93
- E) 33.9

- 10) A town's snowfall in December averages 19 inches with a standard deviation of 8 inches while in February, the average snowfall is 43 inches with a standard deviation of 14 inches. In which month is it more likely to snow 32 inches? Explain. 10) _____
- A) December. Snowfall of 32 inches is $\frac{13}{8}$ from the mean while snowfall of 32 inches is $-\frac{11}{14}$ from the mean in February.
- B) February. Snowfall of 32 inches is $-\frac{11}{14}$ from the mean while snowfall of 32 inches is $\frac{13}{8}$ from the mean in December.
- C) February. Snowfall of 32 inches is $\frac{13}{8}$ from the mean while snowfall of 32 inches is $-\frac{11}{14}$ from the mean in December.
- D) December. Snowfall of 32 inches is $-\frac{11}{14}$ from the mean while snowfall of 32 inches is $\frac{13}{8}$ from the mean in February.
- E) It is equally likely in either month. One can't predict Mother Nature.

- 11) The serum cholesterol levels for men in one age group are normally distributed with a mean of 178.2 and a standard deviation of 40.7. All units are in mg/100 mL. Find the two levels that separate the top 9% and the bottom 9%. 11) _____
- A) 123.7 mg/100mL and 232.7 mg/100mL B) 165.2 mg/100mL and 191.22 mg/100mL
 C) 161.5 mg/100mL and 194.9 mg/100mL D) 107.4 mg/100mL and 249.0 mg/100mL

- 12) The lengths of human pregnancies can be described by a Normal model with a mean of 268 days and a standard deviation of 15 days. What percentage can we expect for a pregnancy that will last at least 300 days? 12) _____
- A) 1.99% B) 1.66% C) 1.79% D) 48.34% E) 98.34%

- 13) Assume that women have heights that are normally distributed with a mean of 63.6 inches and a standard deviation of 2.5 inches. Find the value of the quartile Q₃. 13) _____
- A) 67.8 inches B) 65.3 inches C) 64.3 inches D) 66.1 inches

- 14) A consumer organization estimates that 31% of the households in a particular community have one television set, 39% have two sets, and 21% have three or more sets. What is the probability that a household chosen at random has no more than one television set? 14) _____
- A) 0.40 B) 0.09 C) 0.60 D) 0.48 E) 0.31

Determine whether the events are disjoint and give a reason.

- 15) Melissa is looking for the perfect man. She claims that at her college 35% of men are smart, 26% are funny, and 16% are both smart and funny. If Melissa is right, are being smart and being funny disjoint events? 15) _____
- A) No, the probability that a man is funny is 0.26, but the probability that a man is funny given that he is smart is 0.46.
- B) Yes, because $P(S \text{ or } F) = P(S) + P(F)$
- C) No, 16% are both smart and funny
- D) Yes, no man is both smart and funny
- E) Yes, the probability that a man is smart is the same as the probability that a man is smart given that he is funny.

Find the mean of the data.

- 16) Jody got a bank statement each month that listed the balance, in dollars, in her checking account. Here are the balances on several statements. 16) _____

\$315.89 \$486.78 \$247.65 \$357.35 \$469.70
\$512.81 \$302.17 \$372.42 \$352.59

Round your answer to the nearest cent.

- A) \$488.19 B) \$357.35 C) \$379.71 D) \$427.17 E) \$373.04

Find the number of standard deviations from the mean. Round to the nearest hundredths.

- 17) Mario's poker winnings average \$300 per week with a standard deviation of \$60. How many standard deviations from the mean is winning \$191? 17) _____

- A) About 1.57 standard deviations below the mean
B) About 1.82 standard deviations below the mean
C) About 0.91 standard deviations above the mean
D) About 0.91 standard deviations below the mean
E) About 1.82 standard deviations above the mean

Find the median of the data.

- 18) Here are the weights, in ounces, of several snack crackers. 18) _____

0.61 1.15 0.77 1.62 0.73 0.76 1.23
1.15 1.53 0.95 0.61 1.12 1.04 0.70
0.47 1.12 0.76 1.04 1.72 0.73 0.56

- A) 1.15 oz B) 0.82 oz C) 1.12 oz D) 0.95 oz E) 0.70 oz

Identify potential outliers, if there are any, in the given data.

- 19) The ages of the 21 members of a track and field team are listed below. 19) _____

15 18 18 19 22 23 24
24 24 25 25 26 26 27
28 28 30 32 33 40 42

- A) 15, 42 B) 15, 40, 42 C) 25 D) 42 E) None

Assume that X has a normal distribution, and find the indicated probability.

- 20) The mean is $\mu = 15.2$ and the standard deviation is $\sigma = 0.9$. Find the probability that X is between 14.3 and 16.1. 20) _____

- A) 0.1587 B) 0.3413 C) 0.6826 D) 0.8413

Solve the problem. Round your answer, as needed.

- 21) In a business class, 30% of the students have never taken a statistics class, 60% have taken only one semester of statistics, and the rest have taken two or more semesters of statistics. The professor randomly assigns students to groups of three to work on a project for the course. What is the probability that at least one of your two group mates has had more than one semester of statistics? 21) _____

- A) 0.19 B) 0.81 C) 0.90 D) 0.10 E) 0.01

- 22) You roll a fair die three times. What is the probability that you roll all 2's? 22) _____
- A) 0.5 B) 0.167 C) 0.005 D) 0.333 E) 1.5

Use summary statistics to answer the question.

- 23) Here are some summary statistics for the size of forest fires last year: smallest fire = 77 acres, mean = 419 acres, median = 419 acres, range = 7923 acres, IQR = 418, Q1 = 168, standard deviation = 51 acres. Between what two values are the middle 50% of fire sizes found? 23) _____
- A) 77 and 8000
B) 168 and 586
C) 83.8 and 335.2
D) 209.5 and 419
E) 104.75 and 314.25

Answer Key

Testname: SAMPLE TEST 1

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