

Choose the *best* answer.

Use the following information for #1-3.

Let $U = \{p, q, r, s, t, u, v, w, x, y, z\}$

$A = \{q, s, u, w, y\}$

$B = \{p, q, s, y, z\}$

$C = \{p, r, v, w, x, y, z\}$. List the elements in the set.

1) $(A \cap C)'$

2) $C \cup B'$

3) $A' \cap B'$

Use the formula for the cardinal number of the union of two sets to solve the problem.

4) Set A contains 12 elements, set B contains 21 elements, and 7 elements are common to sets A and B. How many elements are in $A \cup B$?

Use a Venn diagram to answer the question. (a. Draw the Venn diagram b. answer the question)

5) At East Zone University (EZU) there are 900 students taking College math classes. 381 are taking College Algebra, 564 are taking Calculus, and 103 are taking both College Algebra and Calculus. How many are taking Algebra but not Calculus?

Find the cardinal number for the set.

6) Determine the cardinal number of the set $\{x \mid x \text{ is a day of the week}\}$

7) License plates in a particular state display 3 letters followed by 2 numbers. How many different license plates can be manufactured? (Repetitions are allowed.)

8) There are 5 performers who are to present their acts at a variety show. How many different ways are there to schedule their appearances?

9) A church has 7 bells in its bell tower. Before each church service 4 bells are rung in sequence. No bell is rung more than once. How many sequences are there?

10) Amy, Jean, Keith, Megan, Tom, Pete, Susan, and Dave have all been invited to a birthday party. They arrive randomly and each person arrives at a different time. (a) In how many ways can they arrive? (b) In how many ways can Jean arrive first and Keith last? (c) Find the probability that Jean will arrive first and Keith will arrive last.

11) In a class of 50 students, 25 are Democrats, 17 are business majors, and 8 of the business majors are Democrats. If one student is randomly selected from the class, find the probability of choosing a Democrat or a business major.

12) An architect is considering bidding for the design of a new shopping mall. The cost of drawing plans and submitting a model is \$20,000. The probability of being awarded the bid is 0.09, and anticipated profits are \$100,000, resulting in a possible gain of this amount minus the \$20,000 cost for plans and a model. What is the expected value in this situation?

- 13) A local support group has 2050 members. A study of 732 people with anxiety disorders, and 55% of them reported a link between energy drinks and the inability to focus. Which statement is true?
- a) The population is 2050, the sample is 732, and 55% is a statistic.
 - b) The population is 2050, the sample is 732, and 55% is a parameter.
 - c) The population is 732, the sample is 2050, and 55% is a statistic.
 - d) The population is 732, the sample is 2050, and 55% is a parameter.

Determine whether the data are qualitative or quantitative.

- 14) the names of the students in the statistics class
A) quantitative B) qualitative
- 15) the number of cars that run a particular red light on a given day
A) qualitative B) quantitative

Identify the data set's level of measurement.

- 16) The number of homeruns hit in the World Series
A) ratio B) nominal C) ordinal D) interval
- 17) Low temperatures for each day of the month in January
A) interval B) nominal C) ordinal D) ratio
- 18) Level of temperature for chicken wings (Hot, Medium, Mild, BBQ)
A) nominal B) ordinal C) ratio D) interval

Identify the sampling technique used.

- 19) The first five people boarding a plane are searched thoroughly.
A) systematic
B) cluster
C) convenience
D) random
E) stratified
- 20) A researcher for an airline randomly interviews 20 of the passengers on five randomly selected flights.
A) systematic
B) cluster
C) random
D) convenience
E) stratified
- 21) A community college student interviews everyone in five different classes to determine the percentage of students that own a car.
A) systematic
B) cluster
C) convenience
D) random
E) stratified

Decide which method of data collection you would use to collect data for the study

22) A study where the effects of a tsunami hitting San Diego is observed

- A) simulation B) observational study C) experiment D) survey

Decide which type of experimental design is evident in the experiment described.

23) An experiment is conducted to see whether the reflex response time of men is increased with a new nutritional supplement. 40 men participate in the experiment. Twenty men are randomly chosen to receive the new nutritional supplement, and twenty men are chosen to receive the placebo.

- A) completely randomized design B) randomized block design
C) stratified random sample D) matched pairs design

24) A candy company is changing its formula for its most popular chocolate bar. Before committing to the new candy, the company decides to do an experiment to see which formula is preferred by customers. 40 subjects are randomly chosen to try both candy bars, and then to choose which formula they prefer. The conductors of the experiment do not know which formula the subjects will receive (the order of the treatments given is randomly chosen). Which of the following is a true statement?

- a) A placebo is used.
b) The experiment is blind.
c) The experiment is double-blind.
d) None of these statements is true.

25) There are 750 students who are currently enrolled at your school. You wish to form a sample of 50 students to answer some survey questions. Select the first three students who will belong to the survey.

31524 49587 76612 39789 13537 48086 59483 60680

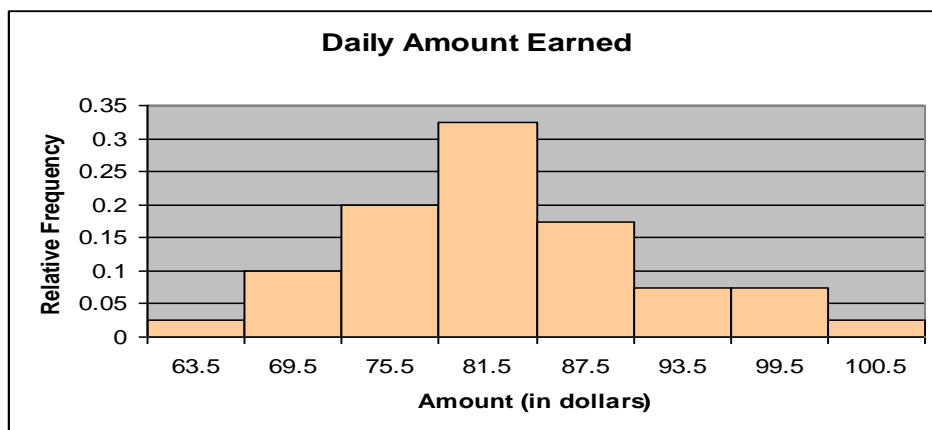
- a) 315, 244, 958
b) 31, 44, 23
c) 315, 244, 612
d) 315, 495, 397

26) Test scores for an anatomy and physiology class had a mean of 76 with a standard deviation of 4.2. Test scores for the AP Government class had a mean of 71 with a standard deviation of 3.8. Suppose a student get an 81 on the anatomy and physiology test and an 76 on the AP Government test. Calculate the z-score for each test. On which test did the student perform better?

- a) Anatomy and Physiology test b) AP Government test c) Equally as well on both

Review Packet B

Use the diagram below for questions 27 and 28.



27) According to the relative frequency distribution shown above, what percentage of people earned an average of less than \$84.50 in one day?

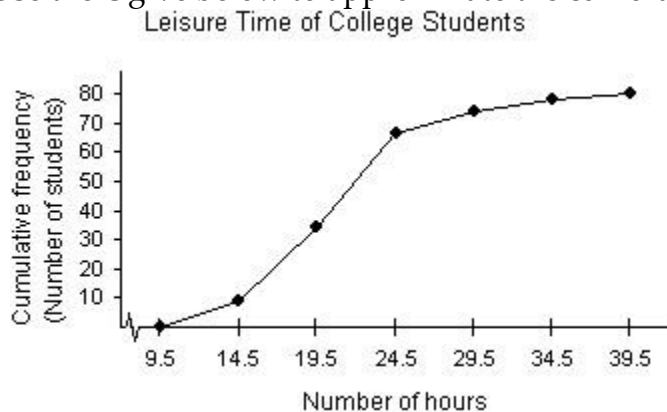
- a) 70% b) 35% c) 32.5% d) 65%

28) If 200 people participated in the survey, how many people earned between \$72.50 and \$78.50?

- a) .2 b) 20 c) 40 d) 50

Provide an appropriate response.

29) Use the Ogive below to approximate the cumulative frequency for 20 hours.



- a) 27 b) 20 c) 37 d) 80

Use the information below for questions 35 and 36.

The heights (in inches) of 20 adult males are listed below.

71	72	70	73	68	74	67	68	70	70
64	72	70	75	69	68	70	71	72	71

35) Find the population standard deviation.

- a) 2.467 b) 2.531 c) 2.789 d) 2.373

36) Find the population variance.

- a) 6.408 b) 6.087 c) 5.913 d) 5.976

37) The random variable x represents the number of cars per household in a town of 1000 households. Find the probability of randomly selecting a household that has more than two cars.

Cars	Households
0	125
1	428
2	256
3	108
4	83

38) Determine the probability distribution's missing value.

The probability that a tutor will see 0, 1, 2, 3, or 4 students

x	0	1	2	3	4
$P(x)$	$\frac{2}{19}$	$\frac{6}{19}$	$\frac{7}{19}$?	$\frac{1}{19}$

39) The random variable x represents the number of boys in a family of four children. Assuming that boys and girls are equally likely, find the mean and standard deviation for the random variable x .

- 40) The random variable x represents the number of credit cards that adults have along with the corresponding probabilities. Find the mean and standard deviation.

x	$P(x)$
0	0.25
1	0.35
2	0.21
3	0.13
4	0.06

- 41) A test consists of 550 true or false questions. If the student guesses on each question, what is the mean number of correct answers?

- 42) In a recent survey, 75% of the community favored building a police substation in their neighborhood. If 20 citizens are chosen, what is the mean number favoring the substation?

- 43) According to police sources, a car with a certain protection system will be recovered 85% of the time. If 800 stolen cars are randomly selected, what is the mean and standard deviation of the number of cars recovered after being stolen?

- 44) A test consists of 10 multiple choice questions, each with four possible answers, one of which is correct. To pass the test a student must get 70% or better on the test. If a student randomly guesses, what is the probability that the student will pass the test?