Level 3: Statistics and Probability Post-Test

Question 1:

Randy wants to know how often people in his neighborhood wash their cars.

Which technique will give Randy the **best** sample?

a. Record the number of neighbors he sees washing a car in the afternoon for one week.

b. Walk around the neighborhood and ask 20 people how often they wash their cars.

c. Go to every third house in the neighborhood and ask how often they wash their car.

d. Advertise a neighborhood car wash and calculate the percent of residents who respond.

Question 2:

The tables show the number of people who visited the Wild Kingdom Zoo each day for 14 days.

Week 1

Day	Number of People
Monday	301
Tuesday	202
Wednesday	40
Thursday	256
Friday	325
Saturday	211
Sunday	199

Week 2

Day	Number of People
Monday	250
Tuesday	56
Wednesday	238
Thursday	356
Friday	299
Saturday	267
Sunday	241

Which statistics will provide the **most accurate** estimate of the number of people who visit the zoo each day?

a. mean and range

b. median and interquartile range

c. range and median

d. interquartile range and mean

Question 3:

The table shows the birth weights of zebras born the same year in two zoos.

Birth Weights of Zebra Foals

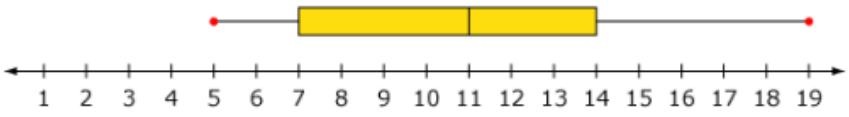
Zoo	Birth Weight (pounds)		
	Zebra Foal 1	Zebra Foal 2	Zebra Foal 3
Lexington Zoo	59	74	71
Alexandria Zoo	73	65	75

What is the difference between the mean absolute deviations of the data sets?

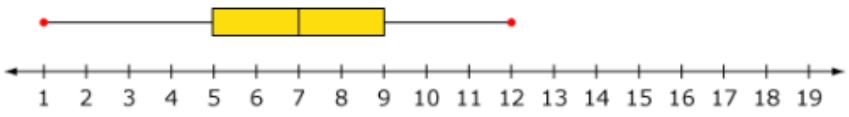
difference =

Question 4:

The box plots show the distribution of lifetimes for cheetahs in zoos and cheetahs in the wild.



Distribution of Lifetimes for Cheetahs in Zoos (years)



Distribution of Lifetimes for Cheetahs in the Wild (years)

What is the overlap in the distribution of lifetimes for cheetahs in zoos and cheetahs in the wild?

a. 1–5 years

b. 7–11 years

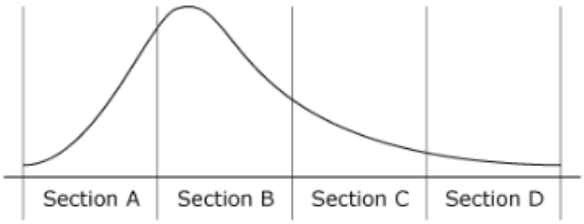
c. 5–12 years

d. 5–14 years

e 12–19 years

Question 5:

The graph below shows the distribution of values for a population trait. The graph is divided into four equal sections.



Which section of the graph contains values that **best** describe the population?

a. Section A

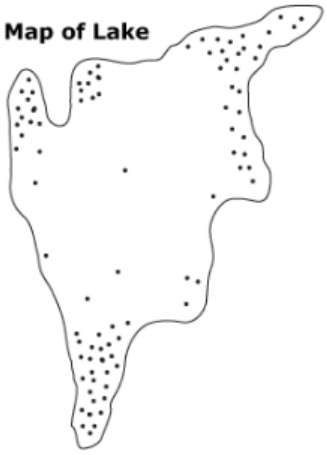
b. Section B

c. Section C

d. Section D

Question 6:

During the annual fishing derby, participants marked a map of the lake to show where they fished. The table shows the types of fish they caught.



Fish Species	Number Caught
Perch	82
Pickerel	33
Bass	13
Walleye	7
TOTAL	135

Which statement is **most likely** true?

a. Most fish live near the shores of the lake.

b. There are more perch in the lake than any other species of fish.

c. Perch and pickerel live near the shore while bass and walleye live in the middle of the lake.

d. Conclusions about fish in the lake may not be valid because the sample is not representative.

Question 7:

Eight candidates are running for sheriff. As voters leave the polls, a polling company asks a random sample of 200 people for whom they voted. The table displays the data.

Election Exit Polls

Candidate	Number of Votes
Ambrose	12
Garcia	6
Jackson	85
Marconi	23
Smith	19
Thomas	0
Volta	50
Zeiman	5

A total of 3,248 people voted in the election.

Which statement is **best** supported by the data?

a. Candidate Volta received exactly 25% of the total votes.

b. Candidate Thomas did not receive a single vote.

c. There are probably more people who voted for Candidate Marconi than Candidate Smith.

d. There are probably more people who voted for Candidate Jackson than Candidate Volta.

Question 8:

Researchers are measuring African and Asian elephants to compare their features.

Which step could have the **greatest** effect on the accuracy of conclusions from the study?

a. using two researchers to record the measurements

b. using the same sample size for each type of elephant

c. using a random number generator to select the elephants

d. using representative samples of each population

Question 9:

A market researcher surveyed 500 people to find their favorite pizza shop. The results from the first 200 people are shown in the table.

Pizza Shop	Number of Votes
Pizza Villa	27
Mama Amore	37
Pizzeria Pizazz	74
Sal's Slices	62

When the researcher tallies the data from all 500 people, what is the **best** estimate of the total number of votes for Sal's Slices?

a. 125

b. 155

c. 246

d. 324

Question 10:

A forecaster reports that the probability of rain today is close to 1.

What does the report mean?

a. Rain is extremely likely today.

b. It will rain about one-half of the time.

c. It will rain one time today.

d. There is a very small chance of rain today.

Question 11:

Several times a year, LJ-Design advertises in a national magazine. The list shows the number of new clients that LJ-Design gained each time the company advertised.

4, 5, 1, 4, 8, 6, 6, 4, 2, 7

Next year, LJ-Design plans to advertise 6 times.

What is the **best** prediction for the number of advertisements that will generate more than 4 new clients?

_____ ads

Question 12:

The table shows the weather on March 12 in Springfield for the past 20 years.

Weather on March 12 for Past 20 Years

	Rain	Snow	Dry
Number of Days	4	7	9

Based on the data from the past 20 years, how many rainy days will Springfield experience on March 12 over the next 50 years?

_____ days

Question 13:

Jamal is 1 of 152 people attending a meeting for publishers. Door prizes will be awarded to 8 people selected at random.

What is the probability that Jamal will win one of the door prizes?

$\frac{\square}{\square}$

Question 14:

A worker randomly selects paperclips from a container of colored paperclips. The table shows how many paperclips of each color the worker selected.

Color	Number of Paperclips
Blue	8
Yellow	11
Green	5
Red	3
Orange	3

The worker randomly selects another paperclip.

Based on the results shown in the table, what is the probability of selecting a blue paperclip?

$\frac{\square}{\square}$

Question 15:

A worker randomly selects paperclips from a container of colored paperclips. The table shows how many paperclips of each color the worker selected.

Color	Number of Paperclips
Blue	8
Yellow	9
Green	6
Red	2
Orange	5

There are 300 paperclips in the container.

On the basis of the results shown in the table, what is the **best** estimate of the number of orange paperclips?

Question 16:

Four blood types exist. The table shows the distribution of blood types for a random sample of 50 people.

Blood Type	# of People
O	24
A	19
B	5
AB	2

Seventy-five people donate blood during a blood drive.

Based on the results in the table, how many people will donate type AB blood?

people

Question 17:

Harold and Sam are 2 of 20 students on student council. Two students will be chosen randomly to serve on a special committee.

What is the probability that both Harold and Sam will be chosen?

$\frac{\square}{\square}$

Question 18:

John is traveling by plane. His trip requires two flights. The probability of a delay for the first flight is $\frac{1}{5}$. The probability of a delay for the second flight is $\frac{2}{5}$.

What is the probability of a delay for **both** flights?

$\frac{\square}{\square}$

Question 19:

Two lines below are from a poem by Emily Dickinson.

How happy is the little stone
That rambles in the road alone

If one letter is selected at random from the words above, what is the probability it will be the letter "o"?

a. $\frac{1}{3}$

b. $\frac{1}{4}$

c. $\frac{4}{45}$

d. $\frac{4}{49}$

Question 20:

A jar contains 6 red marbles, 5 blue marbles, and 4 green marbles. Peggy will take one marble from the jar at random, replace it, and then take a second marble at random.

What is the probability that **both** marbles will be red?

a. $\frac{1}{7}$

b. $\frac{4}{25}$

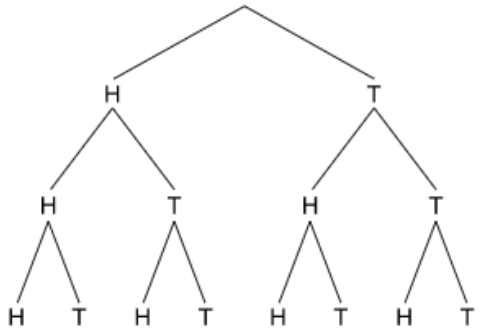
c. $\frac{1}{5}$

d. $\frac{4}{5}$

Continue

Question 21:

The tree diagram shows the possible outcomes when a coin is tossed 3 times. Assume that a result of heads (H) or tails (T) is equally likely.



What is the probability of tossing the coin 3 times with the result being exactly 2 heads and 1 tail?

a. $\frac{1}{8}$

b. $\frac{1}{4}$

c. $\frac{3}{8}$

d. $\frac{3}{4}$

Question 22:

A bag contains 2 black marbles (B) and 1 white marble (W). Two marbles are taken from the bag at random, one at a time, without replacement.

Which list represents the sample space for the possible outcomes?

a. WB

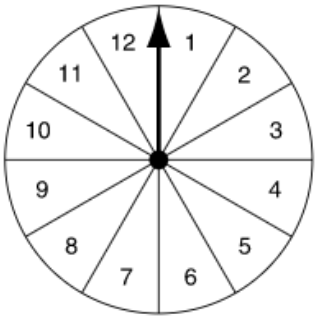
b. WB, BW

c. WW, WB, BB

d. WB, BW, BB

Question 23:

The spinner shown below is divided into 12 equal sections.



If the arrow on the spinner is spun once, what is the probability it will land on a number **greater** than 9? (Use the / key to create a fraction.)

Question 24:

Sammy is playing a guessing game that uses 8 cards.

- 4 cards are black
- 3 cards are white
- 1 card is red

Sammy guesses that he will pick a white card.

What is the probability that Sammy's guess is correct? (Use the / key to create a fraction.)

Stop