Level 3: Statistics and Probability Pretest Answer Key

Question 1:

The table shows statistics about the ages of horses at four horse farms.

Age of Race Horses at Four Horse Farms

Statistic	Age (months)			
	Corner View Stables	Serenity Park Stables	Blue Hill Stables	Cedar Valley Stables
Mean	16.6	26.2	24.4	16.2
Median	16	15	12	4
Mean Absolute Deviation	0.72	17.84	17.28	15.38

Each stable has 5 race horses. The prime age for a race horse is 12 to 48 months.

Which horse farm has the most horses within the prime age range?

a. Corner View Stables

b. Serenity Park Stables

c. Blue Hill Stables

d. Cedar Valley Stables

Question 2:

To estimate the orangutan population in a Borneo rainforest, researchers tagged and released 100 orangutans. Three months later, the researchers used random sampling to count the orangutans in various parts of the rainforest. They counted 550 orangutans, 40 of which were tagged.

What is the **best** estimate of the orangutan population?

1,375 orangutans

Question 3:

Random sampling is a useful tool because it allows researchers to

a. find patterns in phenomena that seem random.

b. categorize phenomena as random or purposeful.

c. predict what most likely will happen next in a series of events.

d. draw conclusions about a group without studying every member.

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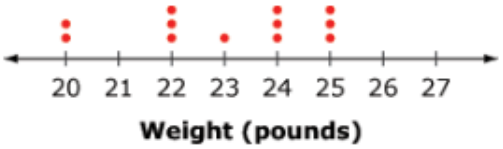
Question 4:

This dot plot shows the weight, in pounds, of penguins at a zoo.



At another zoo, the mean absolute deviation of the penguin weights is 1.65.

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

a. 0.15

b. 0.44

c. 16.35

d. 21.35

Question 5:

A scientist makes the following prediction.

The probability of a visible supernova in the next 50 years is close to 1.

What does this prediction mean?

a. In the next 50 years, there will be exactly one visible supernova.

b. In the next 50 years, there is a 100% chance of a supernova.

c. In the next 50 years, there is a 50% chance of a supernova.

d. In the next 50 years, there is a small chance of a supernova.

Continue

Question 6:

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

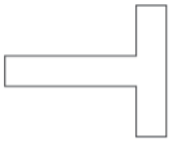
The worker randomly selects another paperclip.

On the basis of the results shown in the table, what is the probability of selecting a yellow **or** a green paperclip?

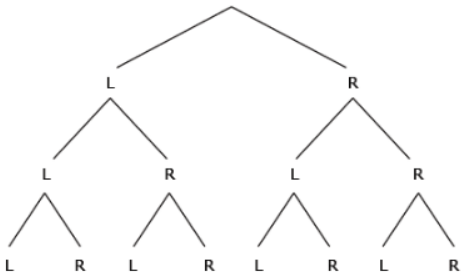
$\frac{16}{30}$

Question 7:

A researcher is studying the behavior of mice in a maze. The maze is T-shaped. The mice must turn either right or left.



The researcher puts 3 mice in the maze. The tree diagram shows the possible outcomes.



What is the probability that 2 mice will turn left and 1 will turn right?

$\frac{3}{8}$

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Question 8:

Dustin surveyed 50 students at his school about their music preferences. The results are shown in the table.

Music Preference Survey

Type of Music	Number of Votes
Hip-Hop	18
Country	13
Rock	11
Other	8

There are a total of 722 students at Dustin's school.

Based on the survey results, which is the **best** estimate of the number of students who prefer hip-hop music?

a. 180

b. 240

c. 260

d. 405

Question 9:

Kevin designed a spinner to use in a probability experiment. The tally chart shows the results for the first 20 spins.

Results of 20 Spins

Red	Blue	Green
𝍸 II	IIII	𝍸 IIII

In his experiment, Kevin will spin the arrow a total of 50 times.

Based on the results in the tally chart, how many of the results will be "Blue"?

a. 6

b. 8

c. 10

d. 12

Continue

Question 10:

Norma bought a plastic bag that contains 100 balloons. The label on the bag says that there are 20 each of blue, yellow, red, green, and orange balloons. Norma will take one balloon from the bag at random.

What is the probability that the balloon will be either red or blue?

a. $\frac{3}{2}$

b. $\frac{2}{3}$

c. $\frac{3}{5}$

d. $\frac{2}{5}$

Question 11:

Mr. Marlton and his class are on a field trip. They are being served box lunches that consist of 1 sandwich, 1 snack, and 1 drink. The box lunches are made of equal numbers of each of these types of sandwich, snack, and drink, and were put together at random.

- Sandwich: ham, turkey, or cheese
- Snack: yogurt or banana
- Drink: juice or water

What is the probability that any 1 box lunch has a cheese sandwich, banana, and water?

a. $\frac{1}{12}$

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

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

d. $\frac{3}{7}$

Question 12:

The list below shows the number of runs scored by a baseball team during the last 10 games.

6, 4, 0, 3, 7, 5, 5, 3, 1, 3

The baseball team will play 6 more games.

Based on the list, what is the **best** prediction for the number of remaining games in which the team will score fewer than 4 runs?

3 games

Continue

Question 13:

Ms. Carlton is one of 85 people having dinner at a business meeting. Door prizes will be awarded to 5 people selected at random during the dinner.

What is the probability that Ms. Carlton will win one of the door prizes? (Use the / key to create a fraction.)

$\frac{1}{17}$

Question 14:

Brendan did an experiment with a card painted red on one side and blue on the other. He dropped it 25 times, and it landed with the blue side facing up 16 times.

Based on the results of Brandon's experiment, what is the probability the blue side will face up on the next drop? (Use the / key to create a fraction.)

$\frac{16}{25}$

Question 15:

Six teenagers, 2 boys and 4 girls, participated in a community blood drive. Two of the participants will be chosen at random, one at a time, to receive a gift certificate.

What is the probability that both participants chosen will be boys? (Use the / key to create a fraction.)

$\frac{1}{15}$

Stop