Unit: Data & Statistics Review

Name _____

Date _____ Pd_____

DATA & STATISTICS UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

I CAN COMPARE TWO POPULATIONS BASED ON RANDOM SAMPLES.

1. A random sample from the 6th and 7th grade student population was taken to determine which clubs were the most popular.

	YEARBOOK	STUDENT COUNCIL	JUMP ROPE
6TH GRADE	10	24	6
7TH GRADE	18	20	2

a. If there are 280 6th graders and 200 7th graders, then how many more 7th graders are involved in the yearbook?

b. What percent of 6th graders are involved in the yearbook club?

c. The school decides to drop any club with less than 5% of the population enrolled. Should any clubs be dropped?

I CAN USE DATA FROM A RANDOM SAMPLE TO MAKE INFERENCES.

2. An internet company randomly selected 50 of its customers and asked them how many hours per week they use the internet. Of those surveyed, 28 use the internet more than 15 hours per week. Based on the data, if the company has 800 subscribers, how many use more than 15 hours per week?

3. A survey of 2,000 registered voters is used to predict by how many percentage points a candidate is leading. Of the 2,000 people, 1,240 planned to vote for Candidate A. By how many percentage points is Candidate A leading?

I CAN DETERMINE THE MEASURE OF CENTER IN A DATA SET.

4. The following data set represents the number of minutes 20 students spent reading at home.

NUMBER OF MINUTES	20	25	30	35	40	45
FREQUENCY	3	4	7	1	3	2

Mean: _____ Median: _____

5. The following data set represents the number of drinks made at a smoothie shop each day.

94, 72, 110, 88, 79, 84, 113, 92, 108, 115

Mean: _____ Median: _____

I CAN FIND THE MEASURE OF VARIABILITY.

6. The following data set represents the number of dolphins seen from a cruise ship each day for the past 5 days.

12, 15, 13, 22, 18

NUMBER OF DOLPHINS	DISTANCE FROM MEAN
12	
15	
13	
22	
18	
TOTAL DEVIATION	

a. Mean: _____ MAD: _____

b. What does the MAD represent in the context of the situation?

7. The following data set represents the number of student absences at Southwinds High School each week for the past 10 weeks.

8, 12, 4, 7, 13, 15, 5, 7, 11, 15

Q1: _____ Q3: _____ IQR: _____

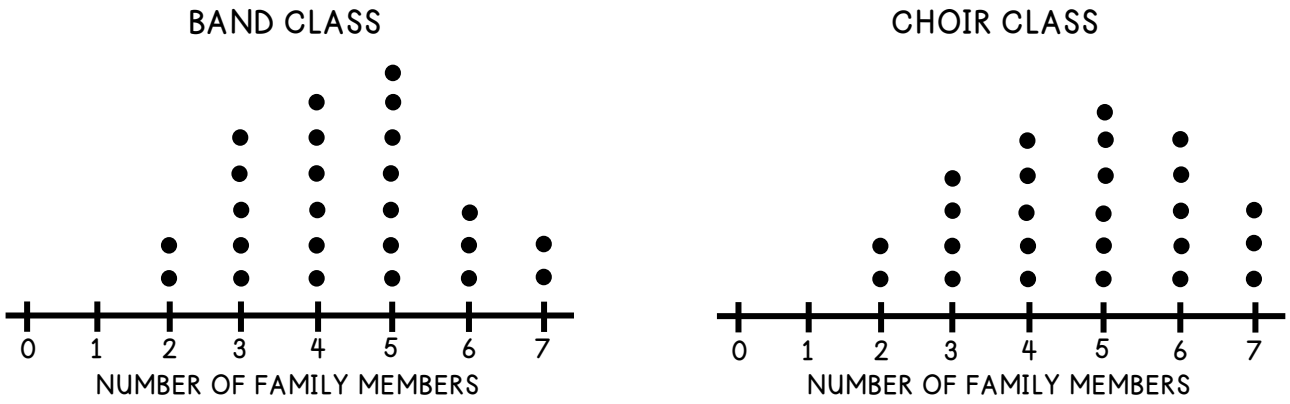
8. The following data set represents the number of text messages sent each day for eleven days.

18, 20, 12, 35, 19, 15, 18, 22, 48, 24, 50

Q1: _____ Q3: _____ IQR: _____

I CAN COMPARE TWO GROUPS OF NUMERIC DATA.

9. In 5th period, a survey is conducted to determine the number of family members in each student's family. The results from the band and choir classes are shown below.



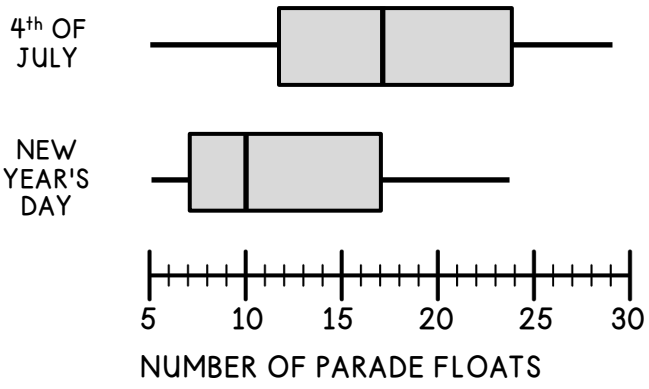
a. What is the median number of family members in band class? Choir class?

b. Compare the distribution of data.

c. What is the range number of family members in band class? Choir class?

I CAN COMPARE TWO GROUPS OF NUMERIC DATA.

In Pleasantville, CA there are two annual parades, the 4th of July parade and New Year's Day parade. The box plots show the number of floats in each parade over the past 15 years.



10. Fill in the blanks below to make each statement true.

a. The range of the data in the 4th of July parade is _____ the range of the data in the New Year's Day parade.

b. The median number of floats in the New Year's Day parade is _____ the median number of floats in the 4th of July parade.

c. The interquartile range for the 4th of July parade is _____ than the New Year's Day parade.

11. How would you describe the shape of the 4th of July parade? The New Year's Day parade?

I CAN ASSESS THE DEGREE OF VISUAL OVERLAP OF TWO DATA DISTRIBUTIONS.

12. Ten students are competing in a solo and ensemble contest. There are two different judges who give out a score for each student. Use the information below to answer questions a-e.

Judge 1: 4, 4, 3, 3, 2, 3, 4, 3, 3, 5
Judge 2: 3, 1, 4, 2, 2, 3, 2, 1, 2, 3

a. Create two dot plots to represent the data below.

b. Describe the similarities and differences in the dot plots above.

c. Find the mean of each Judge's scores. What is the difference in the mean of both data sets?

Judge 1 : _____

Judge 2: _____

Difference: _____

d. Find the mean absolute deviation. What is the mean absolute deviation for the two data sets?

Judge 1 : _____

Judge 2: _____

Difference: _____

e. What conclusions can be drawn from the data?

I CAN DETERMINE THE MEASURE OF CENTER IN A DATA SET.

13. Given the situation below, describe a possible random sample:

a. A school board member surveys parents to learn how they feel about the new school uniforms.

b. A local grocery store would like to determine which new products to carry.

Unit: Data & Statistics Test

Name _____

Date _____ Pd_____

DATA & STATISTICS UNIT TEST

Solve the problems below. Be sure to show your thinking.

1. A grocery store polls every twentieth customer to determine if they are satisfied with the cleanliness of the store. Forty customers are surveyed, and 26 are satisfied. What conclusion can be drawn for the 800 daily customers?

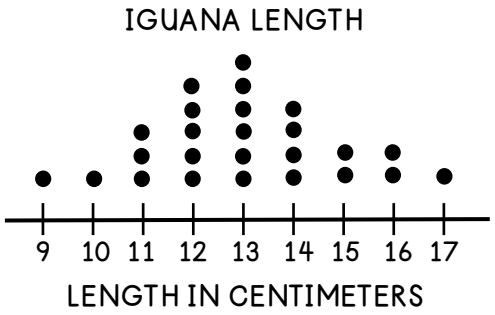
A. 65% of the customers are unsatisfied with the cleanliness of the store.

B. Of the 800 customers, 520 would be satisfied with the cleanliness of the store.

C. 40% of the customers are satisfied with the cleanliness of the store.

D. 25% of the customers are not satisfied with the cleanliness of the store.

2. At the zoo, the length of each iguana is measured. Which statement is best supported by the information below?



A. Over half of the iguanas measure 14 centimeters or more in length.

B. 25% of the iguanas measure 12 centimeters in length.

C. The number of iguanas that measure 15 centimeters or more is equal to the number that measure 11 centimeters or less.

A random sample of 40 students from each grade level were surveyed regarding their preference for a class field trip. Use the table below to answer questions 3-4.

	ZOO	MUSEUM	SPORTS COMPLEX
7TH GRADE	12	18	10
8TH GRADE	14	19	7

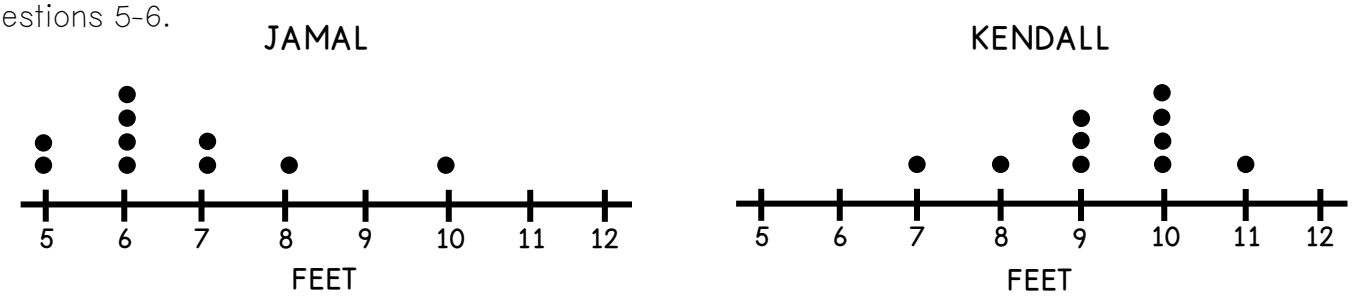
3. If there are 220 members of the 7th grade class, then how many students can be expected to prefer the zoo?

A. 39
B. 48
C. 120
D. 66

4. If there are 180 members of the 8th grade class, then what percent preferred either the museum or the sports complex?

A. 65%
B. 47.5%
C. 17.5%
D. 26%

Two friends measure the distance a race car travels over 10 trials. Use the data to answer questions 5-6.



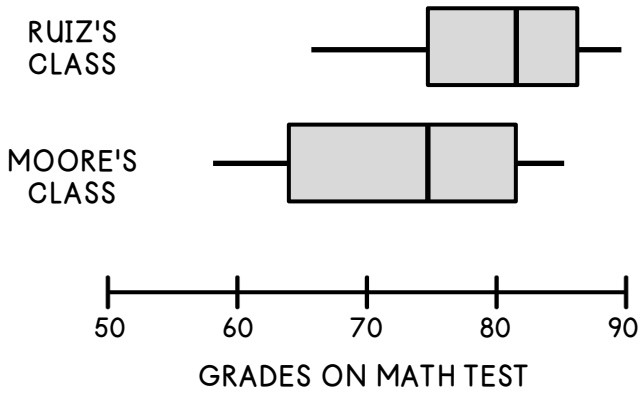
5. Which of the conclusions best supports the dot plots?

A. Both Jamal's and Kendall's race cars had an equal spread in their data.
B. On average, Kendall's race car traveled further.
C. The median distance Jamal's race car traveled was 6.5 ft.
D. Both Jamal and Kendall had the same mode of data.

6. Which of the following represents the mean absolute deviation of Jamal's data?

A. 6.4
B. 1.12
C. 2.8
D. 0.9

Mrs. Moore's and Mrs. Ruiz's classes are competing for the best scores on their math test. Use the box plots below to answer questions 7-8.



7. Which of the following statements does **not** represent the data?

A. The scores in Mrs. Ruiz's class have less variability than the scores in Mrs. Moore's class.
B. The median of Mrs. Moore's class is equal to the first quartile of Mrs. Ruiz's class.
C. The interquartile range of both classes is equal.
D. The scores in Mrs. Moore's class have a greater spread than the scores in Mrs. Ruiz's class.

8. Which of the following represents the difference in centers of Mrs. Moore's class and Mrs. Ruiz's class?

A. 7
B. 11
C. 4
D. 3

9. Data is collected from a random sample of 40 people at the public library. If the public library has 300 patrons, then which of the following conclusions can be drawn?

	NON-FICTION	MYSTERY	SCI-FI
LIBRARY PATRONS	12	18	10

A. Exactly 42% of the library patrons chose a mystery.

B. Non-fiction and science fiction represent over half of the selections.

C. Over 25% of the library patrons chose a science fiction book.

D. 136 total patrons can be expected to choose a non-fiction book.

10. The data set below represents the different costs of a tablet at an electronics store.

$298, $196, $248, $379, $319, $276, $198, $349

a. What is the median of the first half of the data? (first quartile) _____

b. What is the median of the second half of the data? (third quartile) _____

c. What is the interquartile range? _____

11. A company surveyed all of the employees in their Columbus, Ohio office, one of their six national offices. Based on the survey, they determined that 72% of all employees were satisfied with their job. Which of the following explains why this is NOT a random sample?

A. They only surveyed people who had been at their job for five years or more

B. They did not survey employees in other offices around the country

C. The survey was conducted electronically

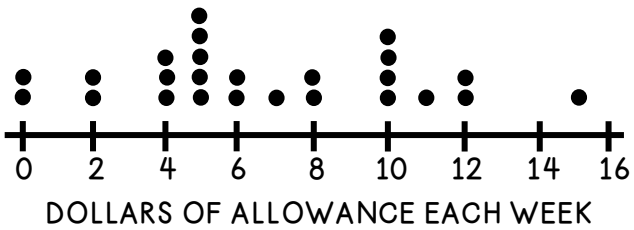
D. The survey had a time limit

12. The number of points in the first five games of the basketball season are listed below. What is the mean number of points scored?

GAME 1	GAME 2	GAME 3	GAME 4	GAME 5
38	29	16	42	33

_____

13. The dot plot below represents the number of dollars in allowance that students receive each week in Mrs. Jimenez's class. What is the median amount of allowance?



A. 4
B. 5
C. 6
D. 7.5

14. When applying for a job, Micah is told that the monthly salary has a range of $876. He also knows that the starting salary is $1,793 per month. What is the maximum amount of money that Micah can earn with this position?

_____

15. Every time a customer purchases a new computer, one month later they receive a survey in the mail. Eighty-five percent of the surveys stated that the customer had no technical issues.

The people that return the survey are considered...

A. The population
B. The sample
C. Both the population and the sample
D. Neither the population nor the sample

16. A middle school has 6th, 7th, and 8th grade students. Which of the following would be a random sample of the students?

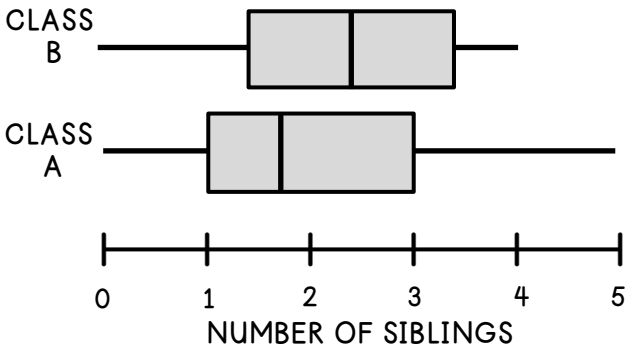
A. Surveying all of the teachers

B. Surveying the students who buy their lunch in the cafeteria

C. Surveying everyone whose last name begins with a G

D. Surveying every tenth student on the class rosters

17. Compare the two box plots below. Which of the following statements is NOT true?



A. Class B has a higher median number of siblings.

B. Class A has a greater variability in the number of siblings.

C. Both Class A and Class B have students who are only children.

D. Over half of the students in Class A have two or more siblings.

Unit: Data & Statistics Review

Name _____

Date _____ Pd_____

DATA & STATISTICS UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

I CAN COMPARE TWO POPULATIONS BASED ON RANDOM SAMPLES.

1. A random sample from the 6th and 7th grade student population was taken to determine which clubs were the most popular.

	YEARBOOK	STUDENT COUNCIL	JUMP ROPE
6TH GRADE	10	24	6
7TH GRADE	18	20	2

a. If there are 280 6th graders and 200 7th graders, then how many more 7th graders are involved in the yearbook?

20

b. What percent of 6th graders are involved in the yearbook club?

25%

c. The school decides to drop any club with less than 5% of the population enrolled. Should any clubs be dropped?

No, the jump rope club has the smallest number of members, but it does represent exactly 5% of the 7th grade population.

I CAN USE DATA FROM A RANDOM SAMPLE TO MAKE INFERENCES.

2. An internet company randomly selected 50 of its customers and asked them how many hours per week they use the internet. Of those surveyed, 28 use the internet more than 15 hours per week. Based on the data, if the company has 800 subscribers, how many use more than 15 hours per week?

$\frac{28}{50} = \frac{x}{800}$

448 subscribers

3. A survey of 2,000 registered voters is used to predict by how many percentage points a candidate is leading. Of the 2,000 people, 1,240 planned to vote for Candidate A. By how many percentage points is Candidate A leading?

$\frac{1,240}{2,000} = \frac{x}{100}$

62% - Candidate A
38% - Candidate B

leading by 24%

I CAN DETERMINE THE MEASURE OF CENTER IN A DATA SET.

4. The following data set represents the number of minutes 20 students spent reading at home.

NUMBER OF MINUTES	20	25	30	35	40	45
FREQUENCY	3	4	7	1	3	2

Mean: 30.75 Median: 30

5. The following data set represents the number of drinks made at a smoothie shop each day.

94, 72, 110, 88, 79, 84, 113, 92, 108, 115

Mean: 95.5 Median: 93

I CAN FIND THE MEASURE OF VARIABILITY.

6. The following data set represents the number of dolphins seen from a cruise ship each day for the past 5 days.

12, 15, 13, 22, 18

NUMBER OF DOLPHINS	DISTANCE FROM MEAN
12	4
15	1
13	3
22	6
18	2
TOTAL DEVIATION	16

a. Mean: 16 MAD: 3.2

b. What does the MAD represent in the context of the situation?

The average distance that the number of dolphins seen each day is from the mean is 3.2.

7. The following data set represents the number of student absences at Southwinds High School each week for the past 10 weeks.

8, 12, 4, 7, 13, 15, 5, 7, 11, 15

Q1: 7 Q3: 13 IQR: 6

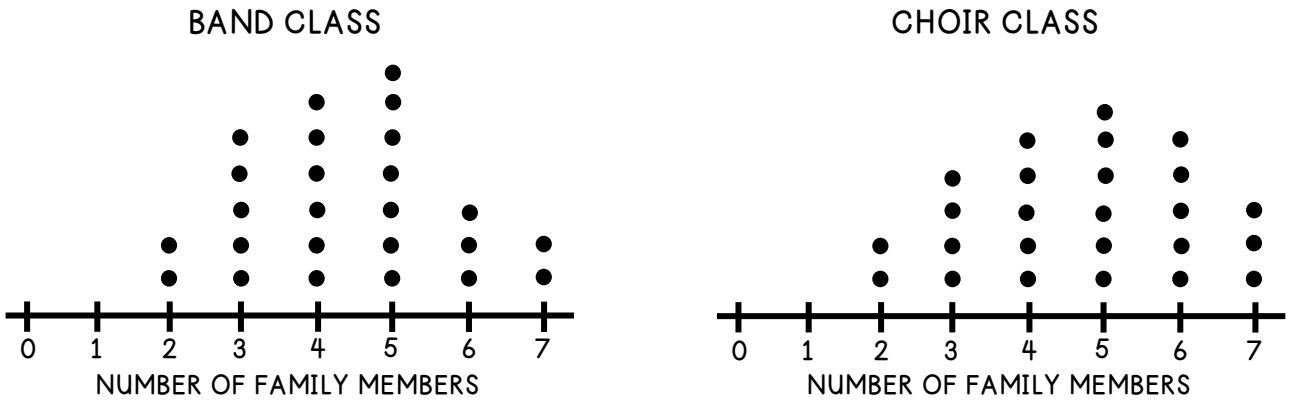
8. The following data set represents the number of text messages sent each day for eleven days.

18, 20, 12, 35, 19, 15, 18, 22, 48, 24, 50

Q1: 18 Q3: 35 IQR: 17

I CAN COMPARE TWO GROUPS OF NUMERIC DATA.

9. In 5th period, a survey is conducted to determine the number of family members in each student's family. The results from the band and choir classes are shown below.



a. What is the median number of family members in band class? Choir class?

Band – 4 family members, Choir – 5 family members

b. Compare the distribution of data.

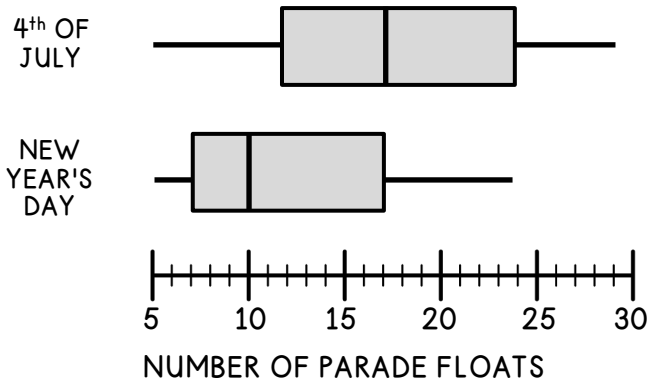
Ex: The band class has a greater number of students with 3-5 family members, while the choir class has students with an evenly distributed number of family members.

c. What is the range number of family members in band class? Choir class?

Band and Choir both have a range of 5 family members.

I CAN COMPARE TWO GROUPS OF NUMERIC DATA.

In Pleasantville, CA there are two annual parades, the 4th of July parade and New Year's Day parade. The box plots show the number of floats in each parade over the past 15 years.



10. Fill in the blanks below to make each statement true.

a. The range of the data in the 4th of July parade is ___greater than___ the range of the data in the New Year's Day parade.

b. The median number of floats in the New Year's Day parade is ___less than___ the median number of floats in the 4th of July parade.

c. The interquartile range for the 4th of July parade is ___2 more___ than the New Year's Day parade.

11. How would you describe the shape of the 4th of July parade? The New Year's Day parade?

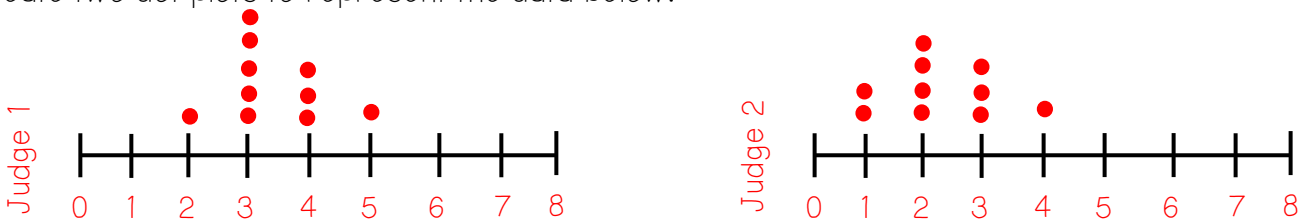
The 4th of July parade is symmetric, and the New Year's Day parade is skewed right.

I CAN ASSESS THE DEGREE OF VISUAL OVERLAP OF TWO DATA DISTRIBUTIONS.

12. Ten students are competing in a solo and ensemble contest. There are two different judges who give out a score for each student. Use the information below to answer questions a-e.

Judge 1: 4, 4, 3, 3, 2, 3, 4, 3, 3, 5
Judge 2: 3, 1, 4, 2, 2, 3, 2, 1, 2, 3

a. Create two dot plots to represent the data below.



b. Describe the similarities and differences in the dot plots above.

There is a slight overlap around a score of 3. Judge 2's scores were overall lower than Judge 1's scores.

c. Find the mean of each Judge's scores. What is the difference in the mean of both data sets?

Judge 1 : 3.4
Judge 2: 2.3
Difference: 1.1

d. Find the mean absolute deviation. What is the mean absolute deviation for the two data sets?

Judge 1 : 0.68
Judge 2: 0.76
Difference: 0.08

e. What conclusions can be drawn from the data?

Judge 2 scored students lower than Judge 1. Judge 2 had a greater spread/variability in the scores.

I CAN DETERMINE THE MEASURE OF CENTER IN A DATA SET.

13. Given the situation below, describe a possible random sample:

a. A school board member surveys parents to learn how they feel about the new school uniforms.

Ex: The school board could send a survey to every fourth parent within the school district.

b. A local grocery store would like to determine which new products to carry.

Ex: The grocery store could position an employee to survey every tenth customer as they enter the store.

Unit: Data & Statistics Test

Name _____

Date _____ Pd_____

DATA & STATISTICS UNIT TEST

Solve the problems below. Be sure to show your thinking.

1. A grocery store polls every twentieth customer to determine if they are satisfied with the cleanliness of the store. Forty customers are surveyed, and 26 are satisfied. What conclusion can be drawn for the 800 daily customers?

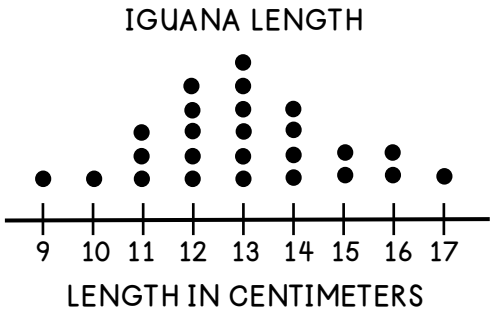
A. 65% of the customers are unsatisfied with the cleanliness of the store.

B. Of the 800 customers, 520 would be satisfied with the cleanliness of the store.

C. 40% of the customers are satisfied with the cleanliness of the store.

D. 25% of the customers are not satisfied with the cleanliness of the store.

2. At the zoo, the length of each iguana is measured. Which statement is best supported by the information below?



A. Over half of the iguanas measure 14 centimeters or more in length.

B. 25% of the iguanas measure 12 centimeters in length.

C. The number of iguanas that measure 15 centimeters or more is equal to the number that measure 11 centimeters or less.

A random sample of 40 students from each grade level were surveyed regarding their preference for a class field trip. Use the table below to answer questions 3-4.

	ZOO	MUSEUM	SPORTS COMPLEX
7TH GRADE	12	18	10
8TH GRADE	14	19	7

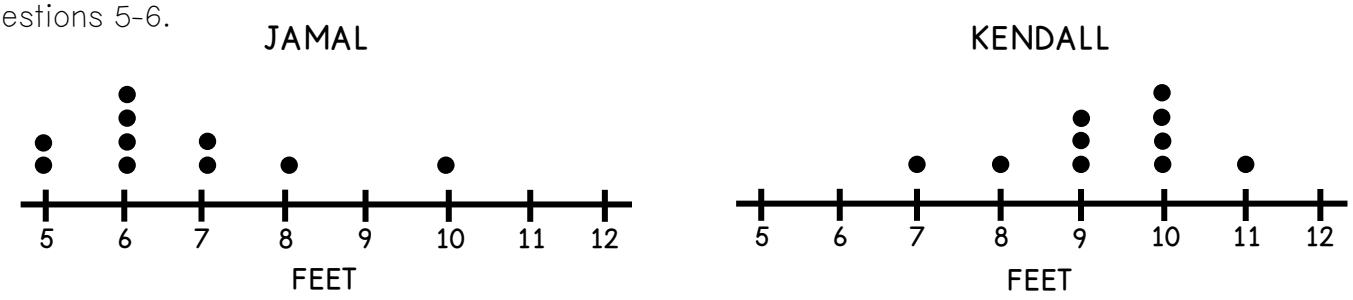
3. If there are 220 members of the 7th grade class, then how many students can be expected to prefer the zoo?

A. 39
B. 48
C. 120
D. 66

4. If there are 180 members of the 8th grade class, then what percent preferred either the museum or the sports complex?

A. 65%
B. 47.5%
C. 17.5%
D. 26%

Two friends measure the distance a race car travels over 10 trials. Use the data to answer questions 5-6.



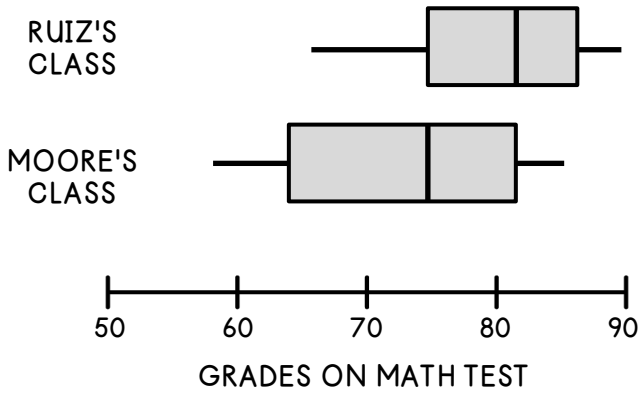
5. Which of the conclusions best supports the dot plots?

A. Both Jamal's and Kendall's race cars had an equal spread in their data.
B. On average, Kendall's race car traveled further.
C. The median distance Jamal's race car traveled was 6.5 ft.
D. Both Jamal and Kendall had the same mode of data.

6. Which of the following represents the mean absolute deviation of Jamal's data?

A. 6.4
B. 1.12
C. 2.8
D. 0.9

Mrs. Moore's and Mrs. Ruiz's classes are competing for the best scores on their math test. Use the box plots below to answer questions 7-8.



7. Which of the following statements does **not** represent the data?

A. The scores in Mrs. Ruiz's class have less variability than the scores in Mrs. Moore's class.
B. The median of Mrs. Moore's class is equal to the first quartile of Mrs. Ruiz's class.
C. The interquartile range of both classes is equal.
D. The scores in Mrs. Moore's class have a greater spread than the scores in Mrs. Ruiz's class.

8. Which of the following represents the difference in centers of Mrs. Moore's class and Mrs. Ruiz's class?

A. 7
B. 11
C. 4
D. 3

9. Data is collected from a random sample of 40 people at the public library. If the public library has 300 patrons, then which of the following conclusions can be drawn?

	NON-FICTION	MYSTERY	SCI-FI
LIBRARY PATRONS	12	18	10

A. Exactly 42% of the library patrons chose a mystery.

B. Non-fiction and science fiction represent over half of the selections.

C. Over 25% of the library patrons chose a science fiction book.

D. 136 total patrons can be expected to choose a non-fiction book.

10. The data set below represents the different costs of a tablet at an electronics store.

$298, $196, $248, $379, $319, $276, $198, $349

a. What is the median of the first half of the data? (first quartile) $223

b. What is the median of the second half of the data? (third quartile) $334

c. What is the interquartile range? $111

11. A company surveyed all of the employees in their Columbus, Ohio office, one of their six national offices. Based on the survey, they determined that 72% of all employees were satisfied with their job. Which of the following explains why this is NOT a random sample?

A. They only surveyed people who had been at their job for five years or more

B. They did not survey employees in other offices around the country

C. The survey was conducted electronically

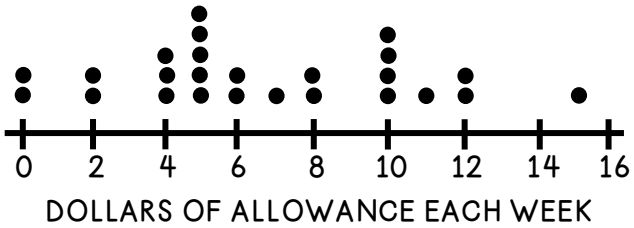
D. The survey had a time limit

12. The number of points in the first five games of the basketball season are listed below. What is the mean number of points scored?

GAME 1	GAME 2	GAME 3	GAME 4	GAME 5
38	29	16	42	33

31.6

13. The dot plot below represents the number of dollars in allowance that students receive each week in Mrs. Jimenez's class. What is the median amount of allowance?



A. 4
B. 5
C. 6
D. 7.5

14. When applying for a job, Micah is told that the monthly salary has a range of $876. He also knows that the starting salary is $1,793 per month. What is the maximum amount of money that Micah can earn with this position?

$2,669

15. Every time a customer purchases a new computer, one month later they receive a survey in the mail. Eighty-five percent of the surveys stated that the customer had no technical issues.

The people that return the survey are considered...

A. The population
B. The sample
C. Both the population and the sample
D. Neither the population nor the sample

16. A middle school has 6th, 7th, and 8th grade students. Which of the following would be a random sample of the students?

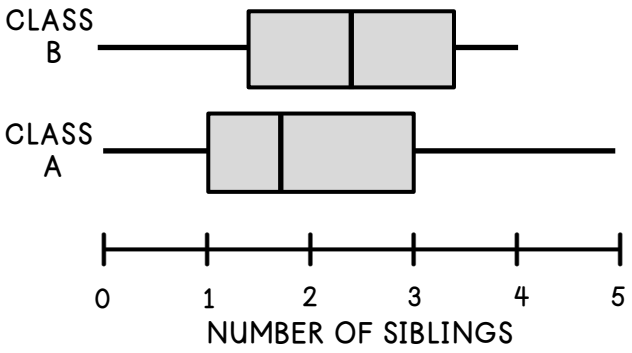
A. Surveying all of the teachers

B. Surveying the students who buy their lunch in the cafeteria

C. Surveying everyone whose last name begins with a G

D. Surveying every tenth student on the class rosters

17. Compare the two box plots below. Which of the following statements is NOT true?



A. Class B has a higher median number of siblings.

B. Class A has a greater variability in the number of siblings.

C. Both Class A and Class B have students who are only children.

D. Over half of the students in Class A have two or more siblings.