

Math 7 Practice Test: Statistics

Name:

Date:

Define the terms below and give an example.

1. population

2. random sample

3. interquartile range (IQR)

4. Determine whether each sample is a random sample or a biased sample. Explain your reasoning. If the sample is biased, determine a sampling method that would better represent the entire population.
 - a. Frank wants to know what subject the student at his middle school like best. He surveys 20 students who are leaving art class.

 - b. Houston and his friends average their math test grades and find that the average is 93. The teacher announces that the average grade for all classes is 85.

5. An online music CD seller wants to survey his buyers to find out if they were satisfied with the time it took to receive their orders. The seller has an extensive database of more than 1 million buyers. Describe a sampling method that would provide him with good information to represent the entire population. _____

6. A store manager at Grocery Smart randomly selects 20 cartons of eggs from the store refrigerator and finds 3 cartons with at least one broken egg. If the refrigerator holds 500 cartons, how many would you expect to have at least one broken egg?

7. A shipment to a warehouse consists of 3,700 DVD players. The manager chooses a random sample of 50 DVD players and finds that 3 are defective. How many DVD players in the shipment are likely to be defective?

8. Which of the following is not a measure of center?

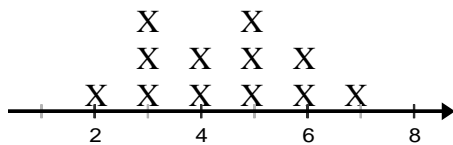
- A mean
- B median
- C mode
- D range

9. Which is not a measure of variability?

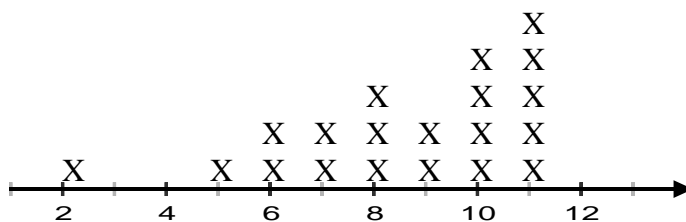
- E range
- F mean absolute deviation (MAD)
- G median
- H interquartile range (IQR)

#10 - #14 For each of the following distributions shown, describe the shape, center, spread and unusual features. (You should have 4 statements for each distribution.)

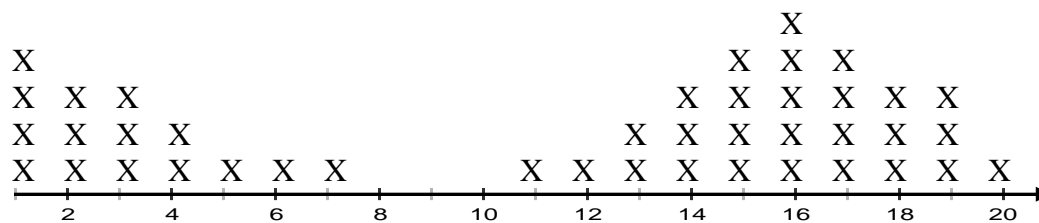
10.



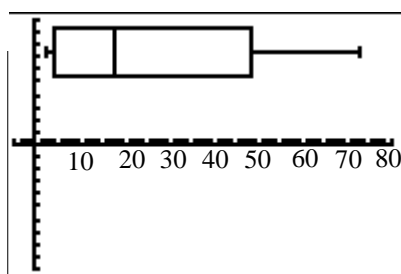
11.



12.



13.



14.

Stems	Leaves
0	1 2 3 4 5 8
1	2 3 4 5
2	2 7
3	9
4	4
5	

Key: $3 | 1 = 31$

15. The stem-and-leaf plot to the right, shows the scores of 25 students on a 50 point project. What percent of the students earned a score that was **less than** 40?

- I 12%
- J 24%
- K 48%
- L 52%

Student's Project Scores

Stems	Leaves
0	
1	0
2	3
3	5 6 6 7 7 8 9 9 9 9
4	0 1 1 2 2 7 7 7 8 8 9
5	0 2

Key: $3 | 1 = 31$

16. Refer to the stem-and-leaf plot in problem 15

What is the median, mode and range of the project scores?

Median: _____

Mode: _____

Range: _____

Use this figure for questions #17 and #18.

17. a) What is the median?

b) What is the lower extreme (least value)?

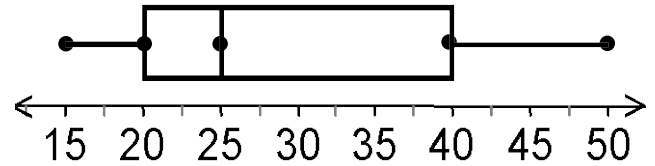
c) What is the upper quartile?

d) What is the range of the data?

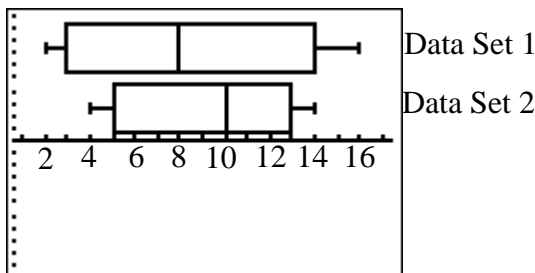
18. a) What percent of the data lies in the box?

b) What is the interquartile range?

c) Describe the spread of the data around the median.



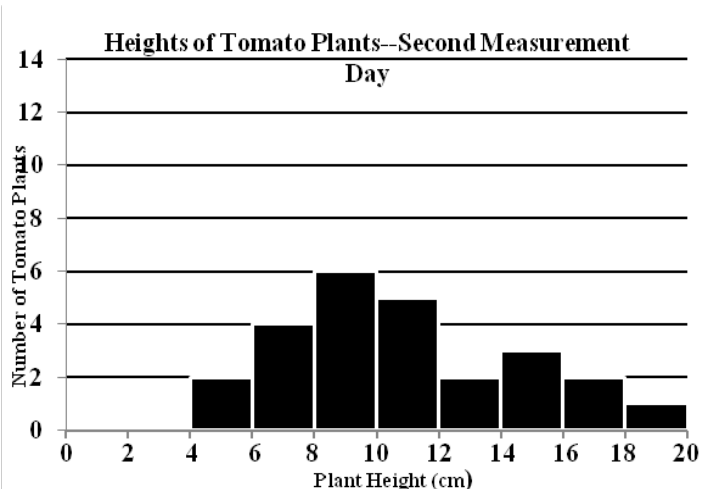
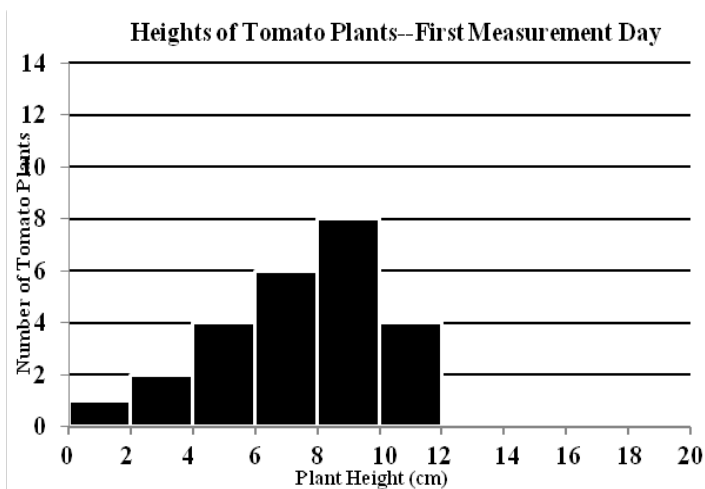
19. The box-and-whisker plots show the distribution of two data sets.



A. Which data set has the greater median?

B. Which data set has the greater interquartile range?

20. Lionel wanted to record the effect of adding fertilizer to tomato plants. He measured the heights of the tomato plants, fertilized them, and then measured the plants again after one week. The histograms below show the results of his measurements.



- a) Describe how the **median** of the heights of the tomato plants changed between the first measurement day and the second measurement day.
- b) Describe how the **range** of the heights of the tomato plants changed between the first measurement day and the second measurement day.
- c) Explain what the change in the range of the heights of the tomato plants from the first measurement day to the second measurement day tells you about the growth of the tomato plant.

21. The data below shows the length of time to finish tests by two different students.

Student 1	Time (min)
25	33
29	41
35	30
32	37
25	31
28	35

Part A: What are the means and mean average deviation s (MAD's) of the data sets?

Part B: Compare the means and the MAD's and explain what they represent.

Part C: Express the difference of the means as a multiple of the MAD.

Long Term Memory Review

22. A proportion is shown below.

$$\frac{2}{7} = \frac{10}{p}$$

What value of p makes the proportion true?

- A $\frac{20}{7}$
- B $\frac{17}{2}$
- C 35
- D 70

23. Look at the input/output table below.

Input	Output
2	-5
4	-12
6	-19
8	?

What would be the output value when the input value is 8?

- A -26
- B -27
- C -31
- D -36

24. Simplify.

A. $.73 \overline{)2.56157}$

B. $\frac{5}{\frac{6}{2}} =$

C. $3(-7+2) - 5(-9) =$

25. Solve for x .

A. $7x - 3 = 88$

B. $\frac{3}{4}x + \frac{1}{2} = \frac{11}{4}$

C. $7(x - 6) = 98$