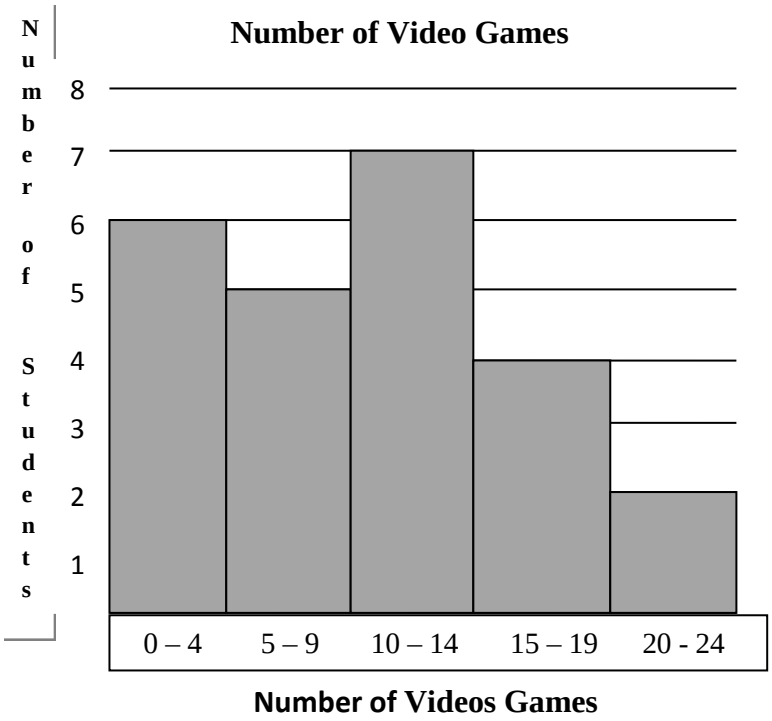
Math 7 Test **Name:** _____
SOL 7.11—Histograms & Data Interpretation

1. The histogram below displays the results from a survey of the number of video games owned by seventh grade students. Use the histogram to complete the frequency table.

Video Games Owned	Number of Students



Use the frequency table and histogram above to answer the following questions.

2. How many students *own no less than* 10 games? _____

3. How many students *own between* 5 and 19 games? _____

4. How many students own 15 or more games? _____

5. How many students *own at most* 14 games? _____

6. Two pieces of data were left out of the data set above. One student owned 6 video games and another student owned 8 video games. If these pieces of data were included in the data set, how would the histogram change?

_____

_____

_____

7. The Spanish Club is selling pencils before school to raise money for a trip. The students are keeping track of how many pencils they sell each day so they will know how many more pencils to order for the next month. The data from the first month are listed below.

Number of Pencils Sold Per Day

38	**~~10~~**	**40**	**26**	**~~12~~**	**35**	**23**	**49**
46	**33**	**~~18~~**	**29**	**32**	**~~14~~**	**44**	**~~12~~**
26	**~~17~~**	**37**	**27**	**35**	**31**		

Use the information in the above data set to complete the following questions (a – e).

a) Complete the frequency table below for the above data set.

Title : _____

Pencils Sold	Tally (Days)	Frequency
10 - 19	𝍸 I	

b) Complete the stem-and-leaf plot below for the above data set.

Number of Pencils Sold Per Day

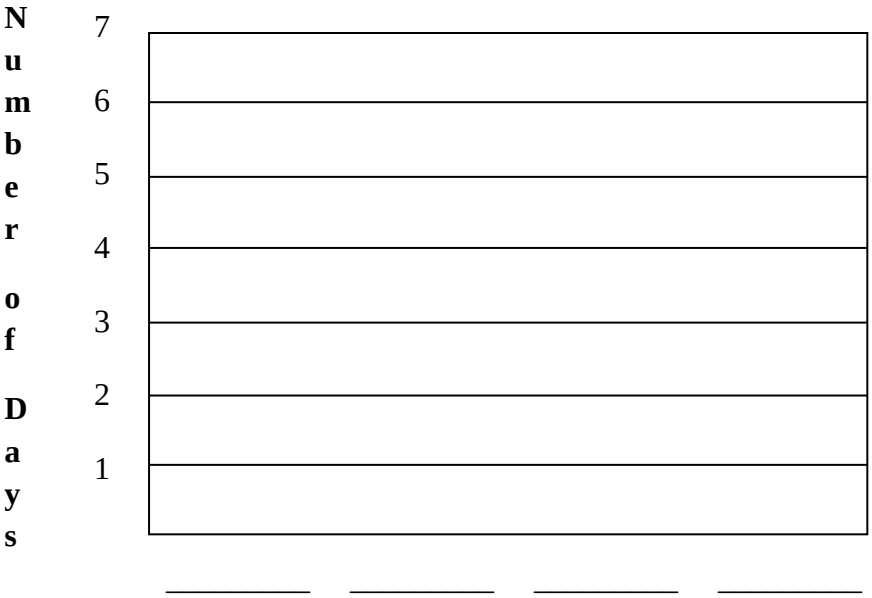
Stem	Leaf
1	0 2 2 4 7 8

c) Find the following for the above data set. Round your answers to the nearest tenth.

Mean: _____ Median: _____ Mode: _____ Range: _____

d) Create a histogram below to represent the pencil data set using the intervals from the above frequency table.

Title: _____



_____ e) The Spanish Club decided to collect pencil data for two more days. They sold 26 and 38 pencils on those days. Including the data for the two extra days will cause which of of the following to occur?

A. Only the value of the mode will change.
B. Only the value of the mean will change.
C. Only the values of the mean and mode will change.
D. Only the values of the mean and median will change.

_____ 8. Janelle makes a line graph that shows the relationship between the number of music downloads she makes and the amount of unused disk space she has left on her phone. Which of the following statements is true?

A. As the number of music downloads increases, the amount of unused disk space increases.
B. As the number of music downloads increases, the amount of unused disk space stays the same.
C. As the number of music downloads increases, the amount of unused disk space decreases.
D. As the number of music downloads decreases, the amount of unused disk space decreases.

_____ 9. Which statement is true about two sets of data that show a negative relationship?

A. One set of data increases as the other decreases
B. The sets of data increase together.
C. The sets neither increase nor decrease together.
D. The sets of data decrease together.

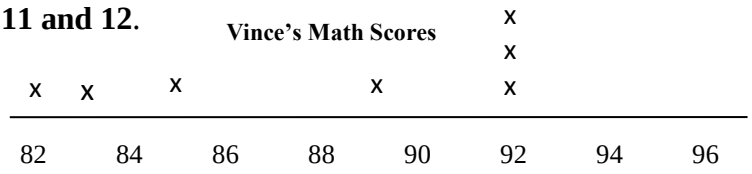
_____ 10. Given the stem-and-leaf plot at right, which set of intervals would best represent the data in a histogram?

A. 52 – 59; 60 – 66; 71 – 75; 84 – 88
B. 50 – 59; 60 – 69; 70 – 79; 80 – 89
C. 1 – 5; 6 – 10; 11 – 15; 16 – 20
D. 52 – 59; 60 – 67; 68 – 75; 76 – 88

Water Bottles Sold Per Student

Stem	Leaf
5	2 6 9
6	0 4 6
7	1 5
8	4 8

The line plot below displays the test scores Vince received in math class. Use the line plot to answer questions 11 and 12.



_____ 11. Which measure would give the most favorable value for Vince's math grade?
A. Mean B. Median C. Mode D. Range

_____ 12. Which measure would give the more accurate value of Vince's math performance?
A. Mean B. Median C. Mode D. Range

_____ 13. Which term means "the number of times a data value occurs"?
A. Median B. Mean C. Frequency D. Quartile

_____ 14. Which number would not appear as a leaf when drawing a stem-and-leaf plot for the following data set? {80, 75, 74, 63, 75, 77, 78, 69}
A. 5 B. 0 C. 7 D. 2

15. The stem-and-leaf plot at the right shows the ages of the members of a band. Use this figure to answer questions a - d.

a) How old is the youngest band member? _____
b) What age is most common in the band? _____
c) What is the range of the ages? _____
d) How many band members are there? _____

Ages of Band Members

Stem	Leaf
1	7 7 8 8 9
2	0 0 0 1 2 2

_____ 16. The following list shows the scores made by each member of Jaime's discussion group on the last test: 71 80 62 93 68 87 73 78. Which frequency table correctly displays the data?

A.

Test Scores	Frequency
60 - 70	2
70 – 80	4
80 – 90	2
90 – 100	1

B.

Test Scores	Frequency
60 - 69	2
70 – 79	3
80 – 89	2
90 – 99	1

C.

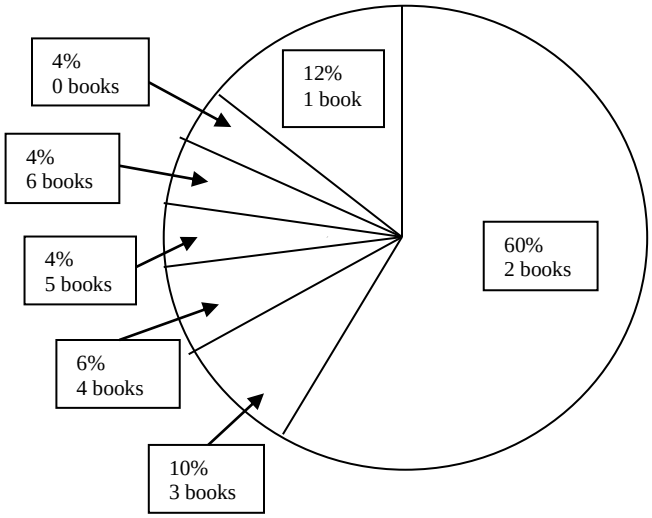
Test Scores	Frequency
65	2
75	3
85	2
95	1

D.

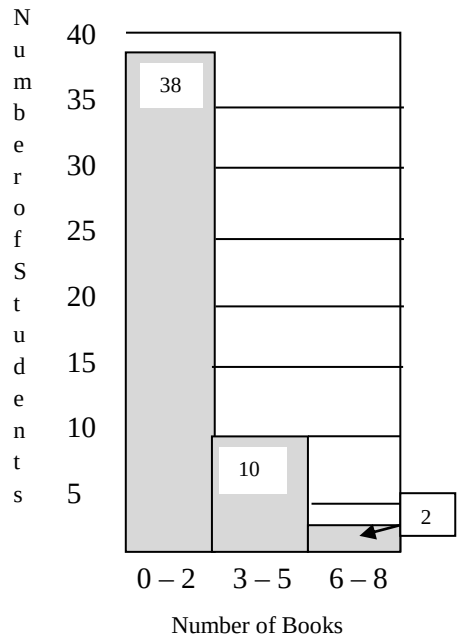
Test Scores	Frequency
60	2
70	4
80	2
90	1

Seventh grade students took a survey about the number of books they read during summer break. The results are displayed in both the circle graph and histogram below. Use the information in the two graphs to answer questions 17 – 21.

Percent of Students Reading *x* Number of Books



Books Read by Students



Write which type of graph, <u>circle</u> or <u>histogram</u>, is best used to answer each question. Answer the questions on the blanks.

17. How many students read more than 2 books? Graph _____

    Answer _____

18. What percent of students read less than 4 books? Graph _____

    Answer _____

19. How many students read between 0 and 5 books? Graph _____

    Answer _____

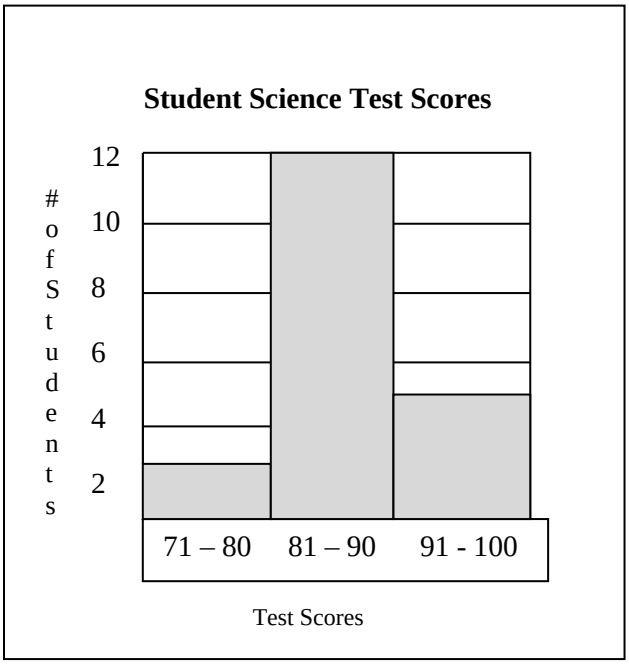
20. How many students were surveyed? Graph _____

    Answer _____

21. If 200 students were surveyed, how many students would be expected to read 1 – 2 books?

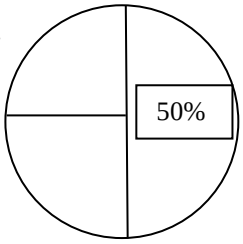
    Graph _____ Answer _____

Use the histogram to the right to answer questions 22 - 24.

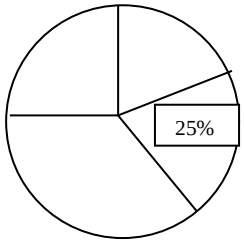


_____ 22. Which circle graph best represents the data in the histogram above if the circle graphs represent the percent of students who scored in each interval.

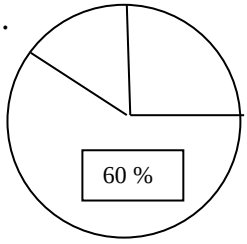
A.



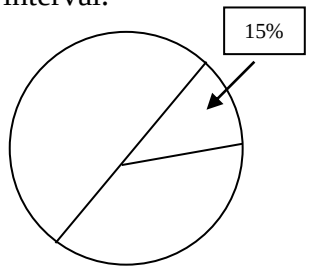
B.



C.

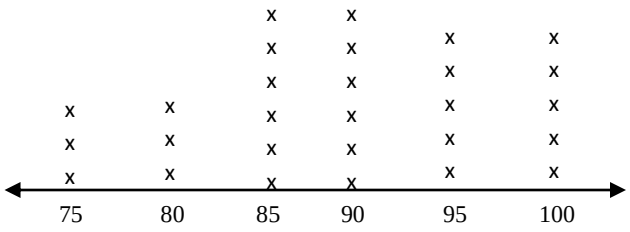


D.

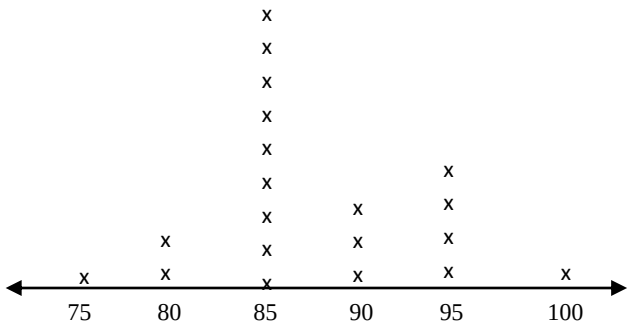


_____ 23. Which line plot could possibly represent the same data as that is displayed in the histogram?

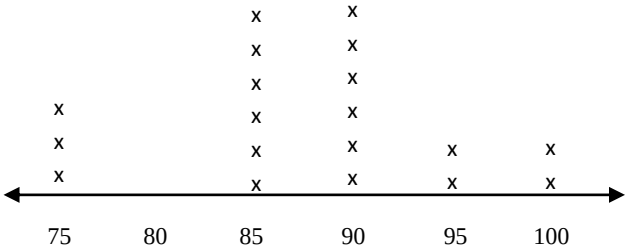
A



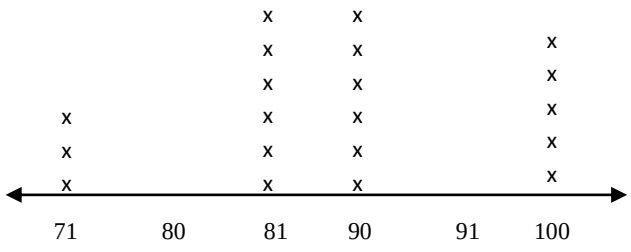
B.



C.



D.



24. Three students took make-up science tests. They received scores of 65, 90, and 105 respectively. Describe how the intervals in the histogram would have to change to reflect these new scores.

_____

_____

_____

SOL 7.11—Histograms & Data Interpretation
Answer Key

1)

Video Games Owned	Number of Students
0 – 4	6
5 – 9	5
10 – 14	7
15 – 19	4
20 – 24	2

2) 13 students
3) 16 students
4) 8 students
5) 18 students
6) The bar for the 5 – 9 interval will increase to seven students.

7) a) Title: **Number of Pencils Sold per Day**

Pencils Sold	Tally (Days)	Frequency
10 - 19	𝍸 I	6
20 – 29	check table	5
30 – 39	check table	7
40 – 49	check table	4

b)

Stem	Leaf
1	1 2 2 4 7 8
2	3 6 6 7 9
3	1 2 3 5 5 7 8
4	0 4 6 9

c) mean: 28.8 median: 30 mode: 12, 26, 35 range: 39

d) title: Number of Pencils Sold per Day
1st interval: 10 – 19; frequency = 6
2nd interval: 20 – 29; frequency = 5
3rd interval: 30 – 39; frequency = 7
4th interval: 40 – 49; frequency = 4

e) C

8) C
9) C
10) B
11) C
12) A
13) C
14) B
15) a) 17; b) 20; c) 5; d) 11 members
16) B
17) histogram; 12 students
18) circle; 68%
19) histogram; 48 students
20) histogram; 50 students
21) circle; 144 students
22) C
23) D

24) You will need to add an interval of 61 – 70 with a frequency of 1.
You will need to increase the frequency in the 81 – 90 interval by 1 (making it 13).
You will need to add an interval of 101 – 110 with a frequency of 1.