

Math 7 Statistics Review Sheet

Name _____

Sampling types:

Stratified Random Sampling

Simple Random

Convenience Sampling

Systematic Random Sampling

Voluntary Response/Self-Selected

1. The suggestions below for how to choose a random sample of students at your school were made. Decide what type of sampling and explain why.

a. Use every fifth person you see in the hallway before class starts.

systematic random sampling

b. Use all of the students taking math during 4th period and choose random students out of the class to survey.

stratified random sampling

c. Students who come to school early chose to fill out a survey for you.

voluntary response sampling / self-selected

d. Survey those students in extra help who are right in your classroom.

convenience sampling

2. A teacher decided to collect homework from a random sample of her students, rather than grading every paper every day.

a. Describe how she might choose a random sample of five students from her class of 35 students.

- she might choose every 7th student that walks in to collect their homework

OR

- she might randomly choose five student's names from a bag

3. A survey found that 5 out of 6 people in a community visit a dentist on a regular basis. If there are 4,320 people in the community, what is a reasonable prediction for the number of people who would visit a dentist on a regular basis?

F. 720
G. 864

H. 2,880

I. 3,600

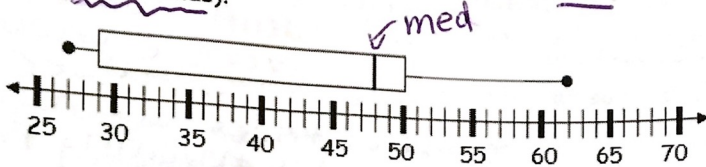
$$\frac{5}{6} = \frac{x}{4320}$$

$$5x = 21600$$

$x = \frac{21600}{6} = 3600$ people

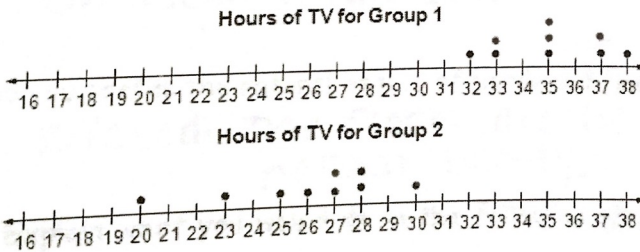
For questions 4 - 8, use the box-and-whisker plot below.

The box and whisker plot below shows the nationwide salary of a small town newspaper columnist (in thousands).



4. What is the median salary of a newspaper columnist? \$48,000
5. What is the minimum salary of a newspaper columnist? \$27,000
6. What percent of the salaries are greater than \$50,000? 25%
7. What percent salaries are less than 29,000? 25%
8. What percent of the salaries are less than \$48,000? 50%

9. The double line plot shows the number of hours each month 2 groups of students reported that they watched TV.



→ symmetric

→ non-symmetric

Which of the following statements is true?

- A. Group 1 has a greater median number of hours that they watched television. Group 1 has a smaller interquartile range, so the data is less spread out.
- B. The mean for group 2 is larger than the mean for group 1.
- C. The median for group 2 is larger than the median for group 1.
- D. Both sets of data are symmetric. You should use the mean to compare the measures of center and the mean absolute deviation to compare the variations

1st part true!
all false!

Group 1 med.
32, 33, 33, 35, 35, 37, 37, 38

Q1 = 33
Q3 = 37
IQR = 37 - 33

4

Group 2 med.
20, 23, 25, 26, 28, 28, 30

Q1 = 24
Q3 = 28

Page 2 IQR = 28 - 24 = 4

10. Which type of data display would be best for showing the results of a survey on students' favorite school subject?

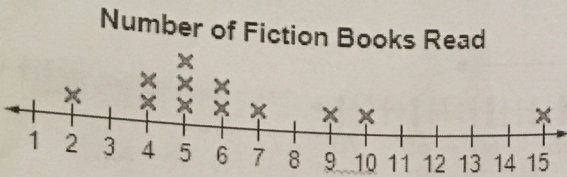
F. line plot

G. bar graph

H. stem-and-leaf plot

I. line graph

11. The line plot below shows the number of fiction books read by one seventh grade class. The teacher says the average number of books read is 6.5. Explain how this could be misleading.



This could be misleading because the average should actually be lower but there are high outliers throwing the average off.

12. The manager of a hotel wants to know how often his customers rent boats at a nearby lake. Which sampling method will give valid results?

A. He asks every tenth customer who checks into the hotel.

B. He posts a question on the hotel's Web site.

C. He randomly surveys households in the neighborhood.

D. He asks every customer in the hotel lobby at noon.

→ voluntary

→ convenience

he wants to know specifically about his customers.

13. Which data value occurs most often?

Stem	Leaf
3	0 2 2 3 4 5
4	
5	1 1 1 4
6	2

51

14. What is the largest value?

Stem	Leaf
2	2 3
3	1 5 7 7 9
4	2

42

15.

The table shows the number of chocolate chip and sugar cookies sold at Hungry Bear Cookies.

Number of Cookies Sold		
Day	Choc Chip	Sugar
Mon.	23	19
Tues.	29	16
Wed.	17	24
Thur.	25	21
Fri.	31	17

- a. What is the median for the number of chocolate chip cookies sold? $17, 23, 25, 29, 31$
- b. What is the median for the number of sugar cookies sold? $16, 17, 19, 21, 24$
- c. What is the difference between the median for the number of chocolate chip cookies sold and the number of sugar cookies sold?
 $25 - 19 = 6$ cookies

16. Directions: Choose Biased or Unbiased. Explain Why.

Sample: Students from a band program

Question: Should more money be put into athletic programs or music programs at school?

Answer: Biased because the sample is asking a specific group from the band program & will most likely pick music programs.

17. Are the following questions Biased or Unbiased? Why?

a) Do you think bike helmets should be mandatory for all bike riders?

Unbiased. A fair question is being asked.

b) Do you prefer the natural beauty of hardwood floors in your home?

Biased. The floors are being described as having natural beauty.

18. Explain what you would do in the following situation:

If I wanted you to find the average height of people who attend this school, give two ways that your sample for the survey might be selected. The first must be an example of a biased sample and the second must be an example of an unbiased sample. Explain your answers.

Biased Sample:

Surveying the heights of students from the basketball team. (most likely will be taller)

Unbiased Sample:

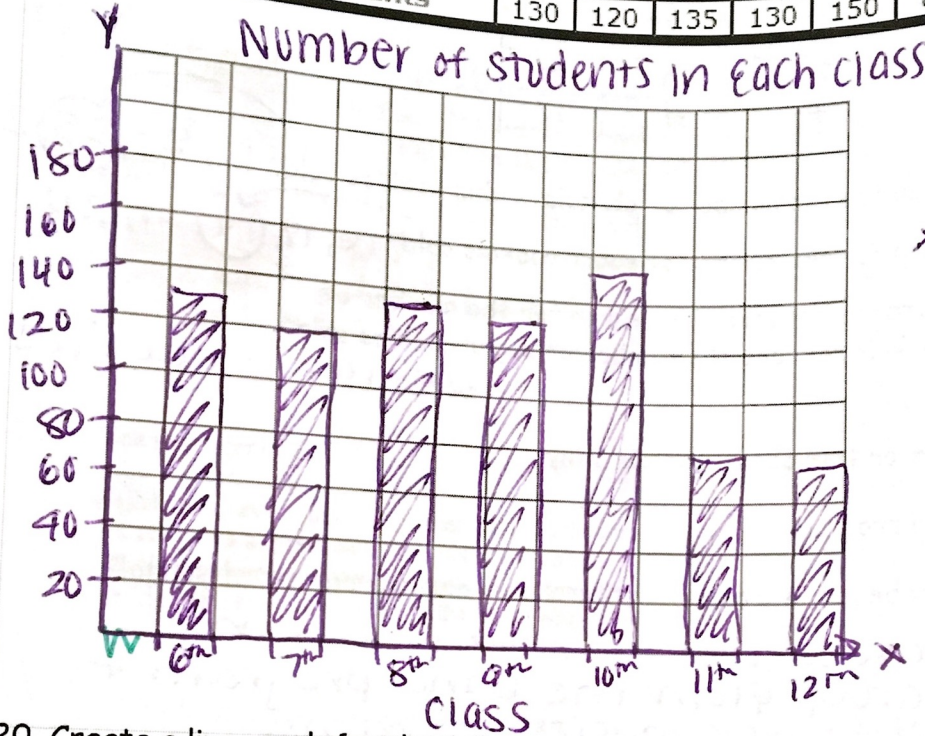
Survey every 10th student who walks into school. (systematic and unbiased random sample)

19. Create a bar graph with the information below:

The number of students in 7 different classes is given below. Represent this data on the bar graph.

Class	6 th	7 th	8 th	9 th	10 th	11 th	12 th
Number of Students	130	120	135	130	150	80	75

Number of students



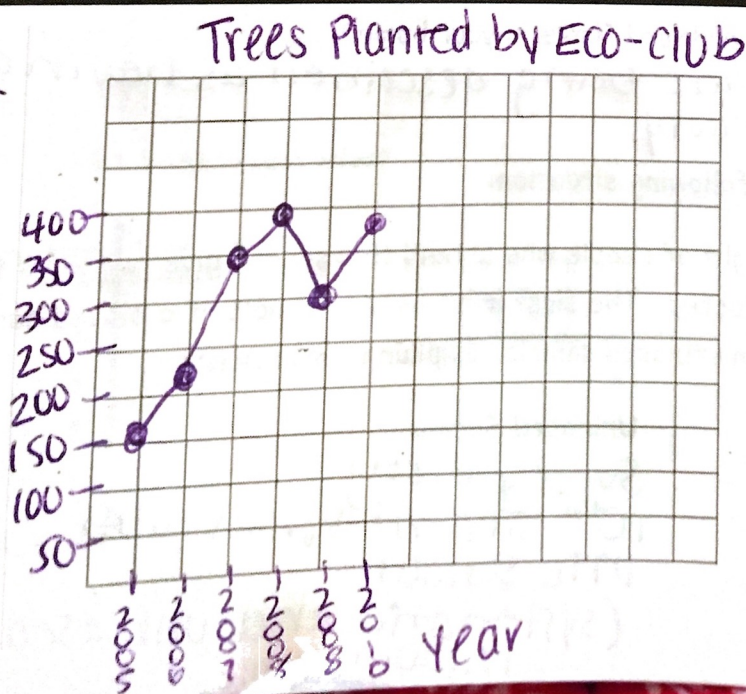
* label x + y axis!
* label title!

20. Create a line graph for the following data.

The number of trees planted by Eco-club of a school in different years is given below.

Year	2005	2006	2007	2008	2009	2010
Number of Trees to be Planted	150	220	350	400	300	380

of trees to be planted

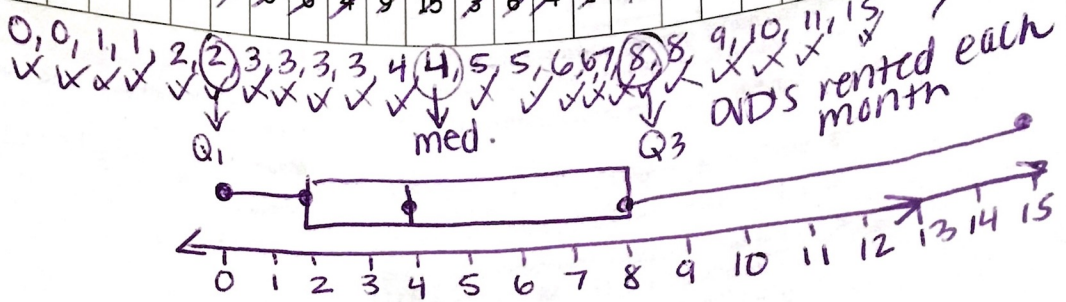


21. Suppose that one family kept track of how many DVDs they rented each month for a two year period. The numbers for each month are shown in the table below. Make a box plot from this data.

J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
3	5	2	8	1	5	0	3	6	4	9	15	3	6	4	1	10	8	8	7	2	9	0	11

Five Number Summary:

$Q_1 = 2$
 $Q_2 = 4$
 (med)
 $Q_3 = 8$
 $\text{min} = 0$ $\text{max} = 15$



* Title!

22 Create a histogram with the following data below:
 ... Daily high temperature in degrees Fahrenheit:

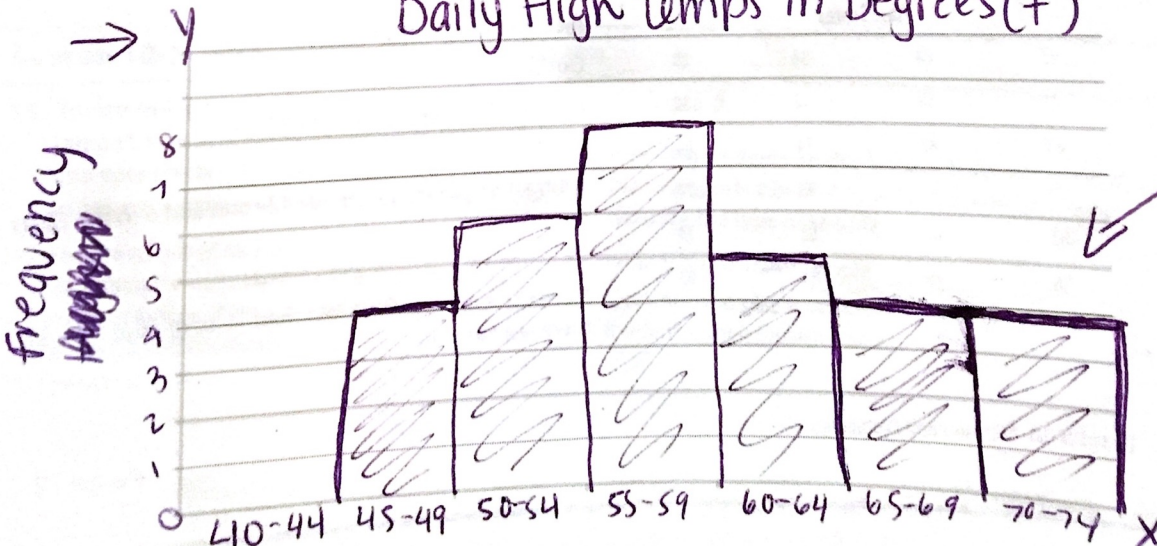
- ~~63~~ ~~70~~ ~~64~~ ~~71~~ ~~70~~ ~~62~~ ~~68~~ ~~67~~ ~~68~~ ~~72~~ ~~65~~
- ~~62~~ ~~59~~ ~~58~~ ~~60~~ ~~59~~ ~~56~~ ~~53~~ ~~51~~ ~~58~~ ~~86~~ ~~50~~
- ~~53~~ ~~57~~ ~~58~~ ~~50~~ ~~46~~ ~~49~~ ~~46~~ ~~52~~ ~~48~~

Frequency table:

Interval	# of values
40-44	
45-49	
50-54	
55-59	
60-64	
65-69	
70-74	

label!

Daily High Temps in Degrees (F)



Bars must touch

Intervals.