Homework 1 ***Name*** _____

Please show your calculations when appropriate

The program "Our Future" has the goal to study behavior and attitude changes in young people in the United States. Each year 8th, 10th, and 12th graders are surveyed. A group of students is selected at random as representative of the whole population of students. In Fall 2014, students were their social media use. Define the W's, if the information is given. Otherwise, write "non specified".

1. Who:
A. Fall 2014 B. 8th, 10th, and 12th graders C. study behavior and attitude changes
D. non specified E. social media use F. 8th, 10th, and 12th graders G. whole population of students H. United States I. at random J. survey

2. What:
A. Fall 2014 B. 8th, 10th, and 12th graders C. study behavior and attitude changes
D. non specified E. social media use F. 8th, 10th, and 12th graders G. whole population of students H. United States I. at random J. survey

3. When:
A. Fall 2014 B. 8th, 10th, and 12th graders C. study behavior and attitude changes
D. non specified E. social media use F. 8th, 10th, and 12th graders G. whole population of students H. United States I. at random J. survey

4. Where:
A. Fall 2014 B. 8th, 10th, and 12th graders C. study behavior and attitude changes
D. non specified E. social media use F. 8th, 10th, and 12th graders G. whole population of students H. United States I. at random J. survey

5. How:
A. Fall 2014 B. 8th, 10th, and 12th graders C. study behavior and attitude changes
D. non specified E. social media use F. 8th, 10th, and 12th graders G. whole population of students H. United States I. at random J. survey

6. Why:
A. Fall 2014 B. 8th, 10th, and 12th graders C. study behavior and attitude changes
D. non specified E. social media use F. 8th, 10th, and 12th graders G. whole population of students H. United States I. at random J. survey

Consider the following :

Age (years)	Sex	Only child?	Height (inches)	Weight (pounds)	Credit Hours	GPA	Major
21	Female	Yes	67.00	140.0	16	3.60	animal science
20	Female	No	62.00	130.0	18	3.86	biology
28	Female	No	64.00	188.0	21	3.25	psychology
21	Male	No	65.00	140.0	15	2.95	psychology
24	Female	No	67.00	130.0	20	3.00	anthropology
22	Male	Yes	68.00	135.0	15	2.94	journalism

Indicate whether each variable is treated as categorical or quantitative in this data set.

7. Age A. Categorical B. Quantitative
8. Sex A. Categorical B. Quantitative
9. Only child? A. Categorical B. Quantitative
10. Height A. Categorical B. Quantitative
11. Weight A. Categorical B. Quantitative
12. Credit hours A. Categorical B. Quantitative
13. GPA A. Categorical B. Quantitative
14. Major A. Categorical B. Quantitative

Is the percentage of young boys drinking juice the same or has it changed over time?
Consider the following table:

		Nationwide Food Survey Years			
		1987-1988	1989-1991	1994-1996	**Total**
Drinks Juice	Yes	354	502	366	**1222**
	No	226	335	366	**927**
	Total	**580**	**837**	**732**	**2149**

Find the following:

15. What percent of the young boys reported that they drink juice?

A. 50% B. 61% C. 56.9% D. 43%

16. What percent of the young boys were in the 1989-1991 survey?

A. 26% B. 68% C. 47% D. 38.9%

17. What percent of the young boys who reported that they drink juice were in the 1989-1991 survey?

A. 60.0% B. 23.3% C. 23.4% D. 41.1%

18. What percent of the young boys in 1989-1991 reported that they drink juice?

A. 60.0% B. 23.3% C. 23.4% D. 41.1%

19. What is the marginal distribution of juice consumption?

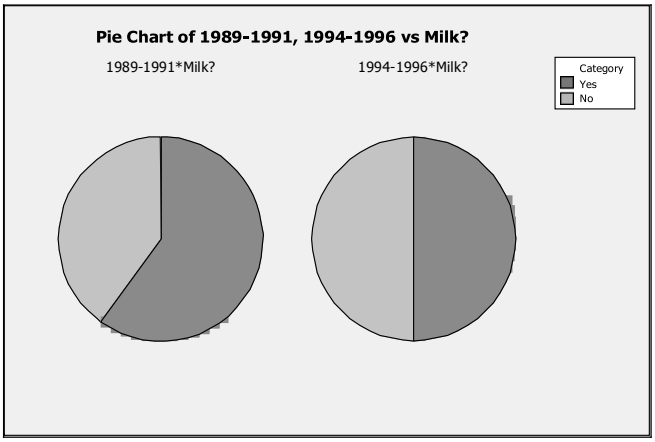
A. Yes: 1,222 No: 927 B. Yes: 354 No: 226 C. Yes: 366 No: 366 D. Yes: 502 No: 335

20. Do you think that juice consumption by young boys is independent of the nationwide survey year?

A. Yes B. No

Explain.

21. Consider the following charts (a subset of the data presented above):



Do the pie charts above indicate that juice consumption by young boys is independent of the nationwide survey year?
A. Yes B. No

Explain.

A survey conducted in a introductory psychology class asked students about how many credits they were taking that semester. The number of credits for a random sample of 16 students is given in the table.

10	10	12	14	15	15	15	15
17	17	19	20	20	20	20	22

23. **Sketch a histogram of these data**

For the number of credits:

24. Find the mean
A. 18.0 B. 15.2 C. 16.3 D 14.7

25. Find the standard deviation
A. 3.7 B. 2.5 C. 3.5 D. 3.2

26. Find the median
A. 16.0 B. 18.0 C. 14.0 D. 15.0

27. Find the IQR
A. 14.5 B. 20.0 C. 13.0 D. 5.5

28. Is it more appropriate to use the mean and standard deviation or the median and IQR to summarize theses data?

A. mean and standard deviation

B. median and IQR

Explain

Let's imagine that the subject taking 22 credits in the dataset we just considered was taking 28 credit hours instead (that means replacing the 22 with a 28). Would changing the number of credits for that student change the following statistics ?

29. Mean
A. increase B. decrease C. stay the same

30. Median
A. increase B. decrease C. stay the same

31. Range
A. increase B. decrease C. stay the same

32. IQR
A. increase B. decrease C. stay the same

33. standard deviation
A. increase B. decrease C. stay the same