

4. (10 pts.) The frequency bar graph above describes how often 1026 Facebook users visit the site.

a. What variable is described by the bar graph? Is it categorical or numerical? Explain.

3

How often users visit Facebook, categorical

b. Estimate the number of Facebook users in the study who visited the site less than once per week.

1

150

c. Estimate the number of Facebook users in the study who visited the site *at least* weekly.

3

$$650 + 225 = 875$$

d. Estimate the number of Facebook users in the study who did NOT visit the site daily.

3

$$225 + 150 = 375$$

5. (5 pts) Construct a DOT plot of the test scores shown in the table below (use and label the number line below)

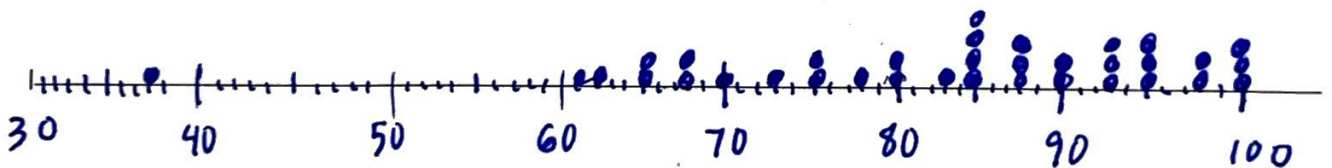
68 80 38 83 73 98 75 95 93 88 85 60 80 85 78 85 90 100

min 38

max 100

98 75 70 62 93 65 100 88 93 95 65 95 85 88 68 90 100

5



15)

6. (10 pts) Teenagers were surveyed about their favorite manufacturer of headphones. The data in Table 10 are based on their responses.

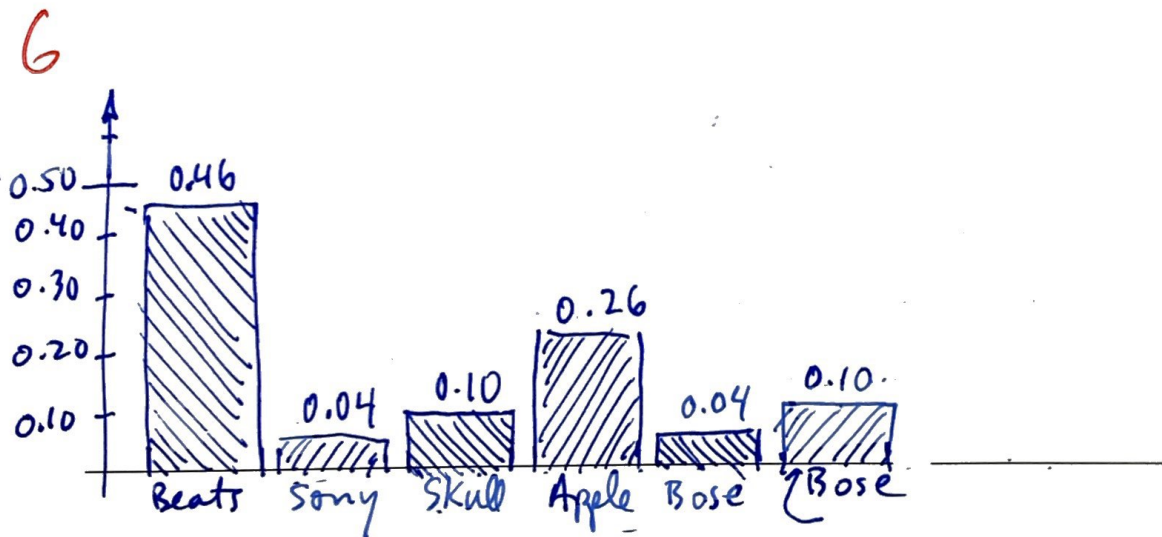
Table 10 Teenagers' Favorite Manufacturers of Headphones

Beats	Apple	Beats	Skullcandy	Other
Beats	Apple	Beats	Apple	Beats
Sony	Beats	Apple	Apple	Bose
Skullcandy	Beats	Other	Skullcandy	Apple
Beats	Beats	Beats	Beats	Beats
Beats	Apple	Other	Apple	Beats
Apple	Beats	Sony	Beats	Beats
Other	Apple	Skullcandy	Beats	Apple
Beats	Beats	Beats	Apple	Beats
Skullcandy	Beats	Apple	Bose	Other

Workspace for counting

Beats $23/50 = 0.46$
 Sony $2/50 = 0.04$
 skull $5/50 = 0.10$
 apple $13/50 = 0.26$
 bose $2/50 = 0.04$
 other $5/50 = 0.10$

a. Construct a relative frequency BAR graph using the line below as the baseline.



c. What proportion of the teenagers prefer Skullcandy headphones?

2 0.10 or 10%

d. What proportion of the teenagers do NOT prefer Skullcandy headphones?

2 $1.00 - 0.10 = 0.90$

10)

7. (10 pts.) Construct a Histogram that uses about 6 category bins.

68 80 38 83 73 98 75 95 93 88 85 60 80 85 78 85 90 100
 98 75 70 62 93 65 100 88 93 95 65 95 85 88 68 90 100

$N = 35$
 $min = 38$
 $max = 100$
 $range = 62$
 $range \div 6 \approx 10$

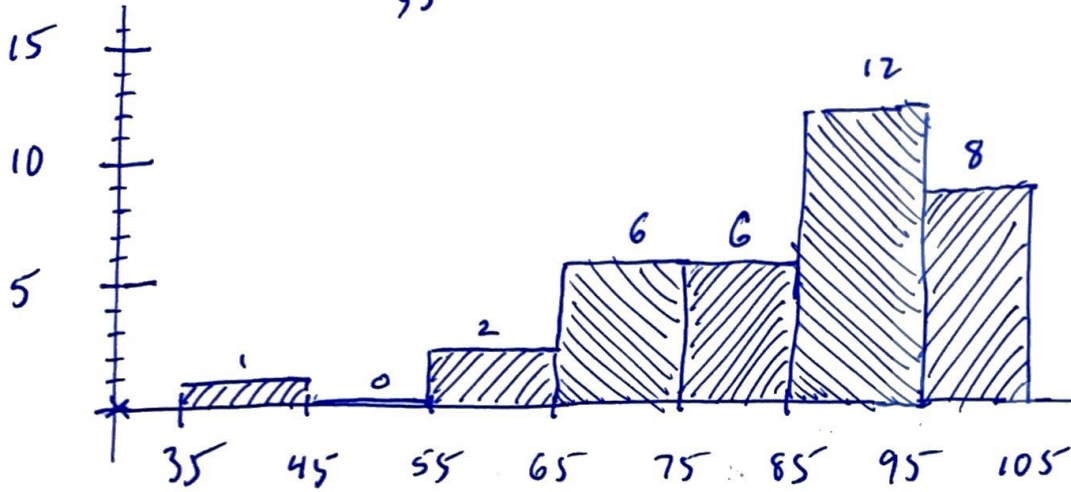
2 classes (bins) (buckets) ...

TABLE of Categories:

35-44		1
45-54		0
55-64		2
65-74		6
75-84		6
85-94		12
95-104		8

3

HISTOGRAM:



5

* For histograms the gap between bars should be none to small.

(10)

8. (10 pts) Newly elected members of the U.S. House of Representatives are referred to as "freshmen." The following frequency distribution presents the number of freshmen elected in each election from 1912 to 2016.

Number of Freshmen	Frequency	Rel. Freq.
20-39	2/53	0.04
40-59	15/53	0.28
60-79	10/53	0.19
80-99	14/53	0.26
100-119	7/53	0.13
120-139	3/53	0.06
140-159	1/53	0.02
160-179	1/53	0.02

Source: Library of Congress 53

3

1 How many classes are there? 8

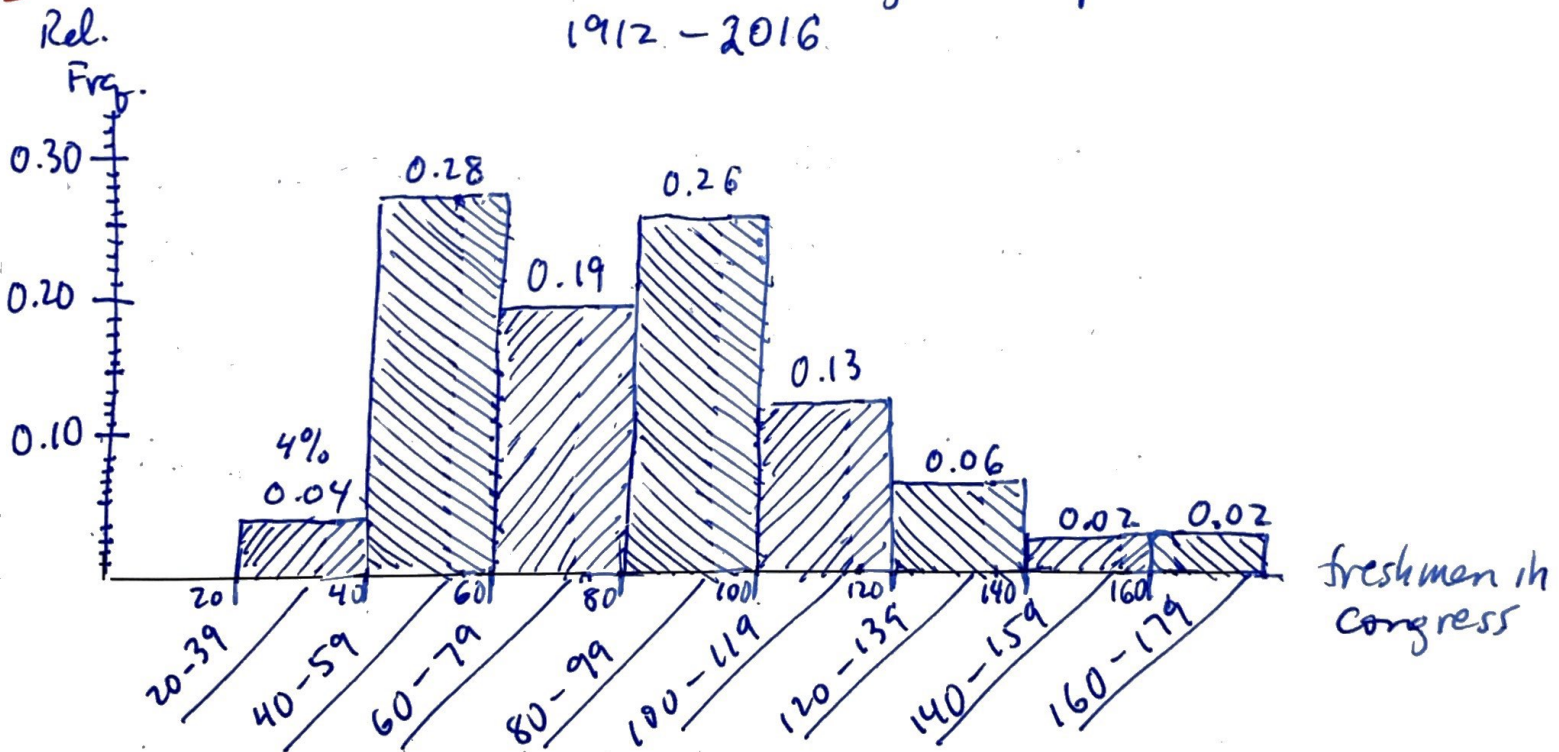
1 What is the class width? 20

Add a column to the table above showing the relative frequency of each class. ^^^^

Construct a relative frequency histogram based on the table above

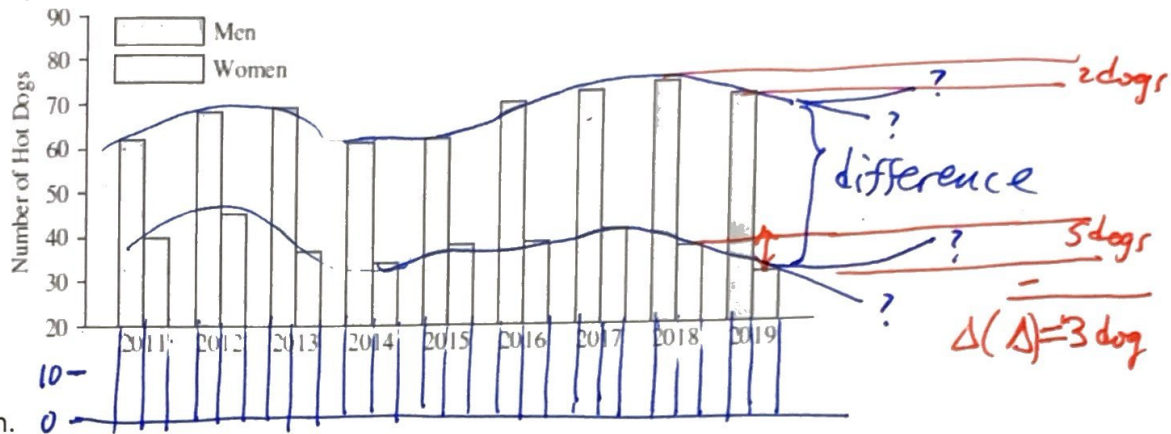
5

Freshman Congress People
1912 - 2016



10)

9. (10pts) The following bar graph presents the number of hot dogs eaten by the men's and women's winner of Nathans Famous Hot Dog eating championship for the years 2011–2019. CNN declares that the gap (difference) in the numbers of hot dogs eaten by men versus women is growing significantly.



Do you agree? Explain.

Observations

1. They are only presenting the tops of the bars, thus magnifying the difference.
2. That said, there is only about 20% hidden below the x-axis.
3. Women hot dog consumption is on the decline about 3 hot dogs per year.
Men's is about the same, maybe 4 dogs.
4. Predicting the next year after this chart's display is called extrapolation and is frowned upon.
5. Conclusion: the gap is widening but Not "significantly."