

Lesson 2 : Visualizing Data

US	China	US	Sweden	China
Canada	China	Japan	Mexico	US
China	Germany	India	India	Japan
US	US	US	China	China
India	Japan	England	India	Japan
England	India	China	Mexico	US
Mexico	US	Canada	Pakistan	India
Japan	China	US	Japan	Germany
China	India	India	China	China
Germany	Japan	China	US	Japan

Frequency Table



US	China	US	Sweden	China
Canada	China	Japan	Mexico	US
China	Germany	India	India	Japan
US	US	US	China	China
India	Japan	England	India	Japan
England	India	China	Mexico	US
Mexico	US	Canada	Pakistan	India
Japan	China	US	Japan	Germany
China	India	India	China	China
Germany	Japan	China	US	Japan

Country	Frequency
Canada	
China	
England	
Germany	
India	
Japan	
Mexico	
Pakistan	
Sweden	
US	

How many students are from the US?

How many students are from the US, China, or Pakistan?

Which two countries have the fewest students?

Relative Frequency

Country	Frequency	Relative Frequency
Canada	2	$2/50 = 0.04$ ← proportion
China	12	<input type="text"/>
England	2	
Germany	3	<input type="text"/>
India	8	
Japan	8	<input type="text"/>
Mexico	3	
Pakistan	1	
Sweden	1	
US	10	

All proportions are always
between or equal to
_____ and _____

For any frequency table,
the relative frequencies should
add to _____.

What proportion of students are from the US?

What proportion of students are from India?

There is a greater proportion of students from

- Europe
- Asia

Percentages

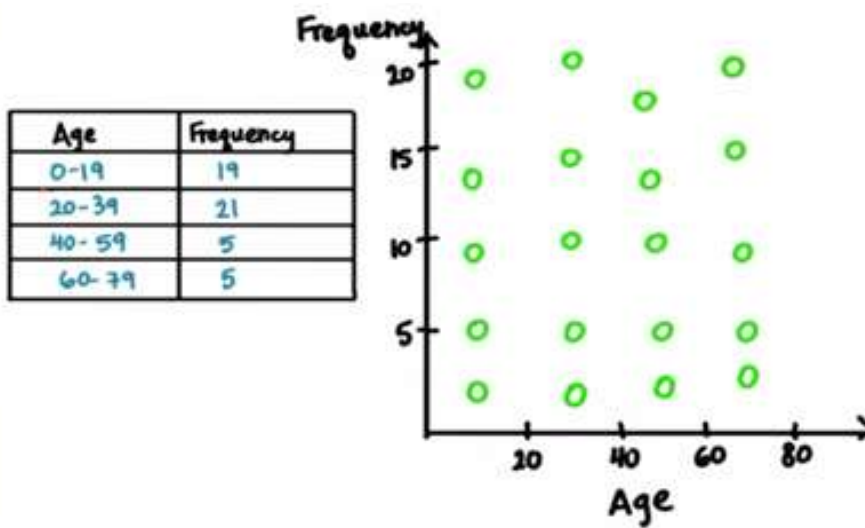
Country	Frequency	Proportion	Percent
Canada	2	0.04	4%
China	12	0.24	
England	2	0.04	
Germany	3	0.06	
India	8	0.16	
Japan	8	0.16	
Mexico	3	0.06	
Pakistan	1	0.02	
Sweden	1	0.02	
US	10	0.20	

Percentages range from
___% to ___%.

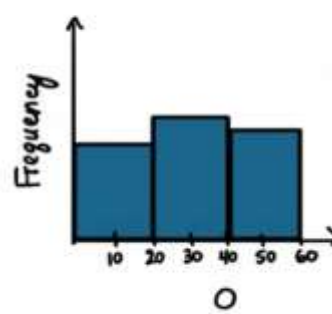
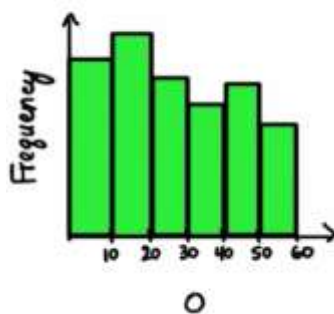
Age	Frequency
0-19	19
20-39	
40-59	5
60-79	5

Visualizing Data

HISTOGRAM

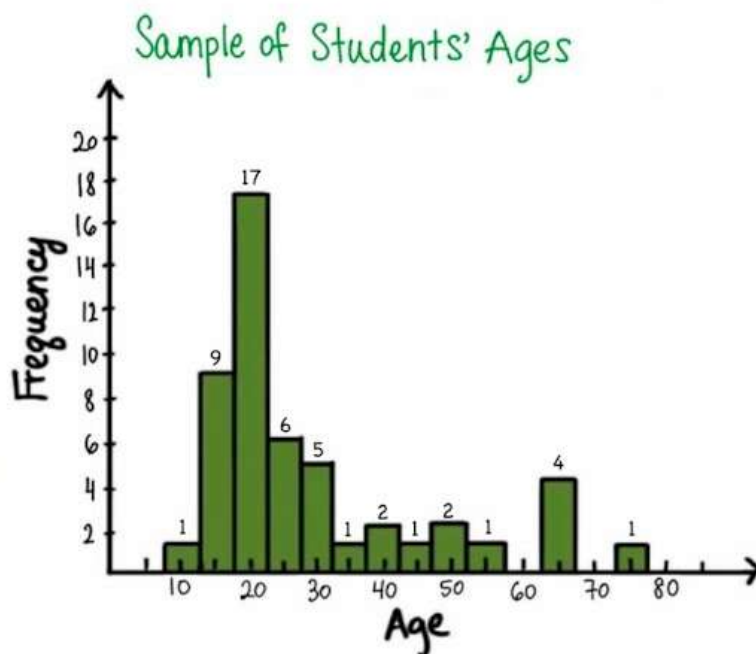


Which histogram has a smaller bin size?



HISTOGRAM SIMULATOR

<https://telemetry.mozilla.org/histogram-simulator/>



What is the bin size?

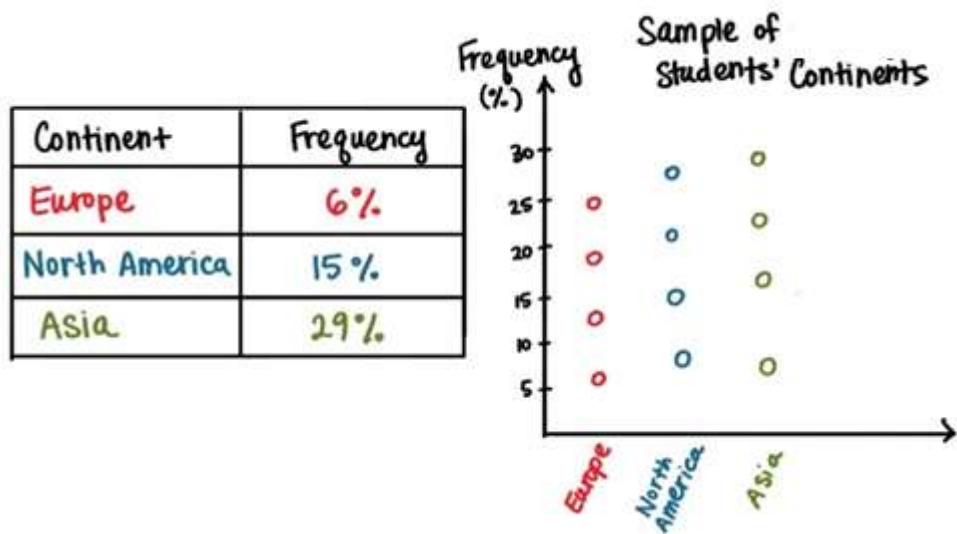
Q: - Now approximately, what is the most frequent age?

Q: - Now, what proportion of students are over 60 years old?

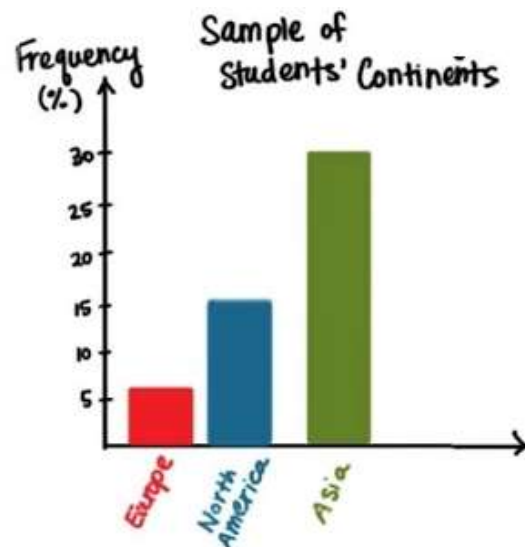
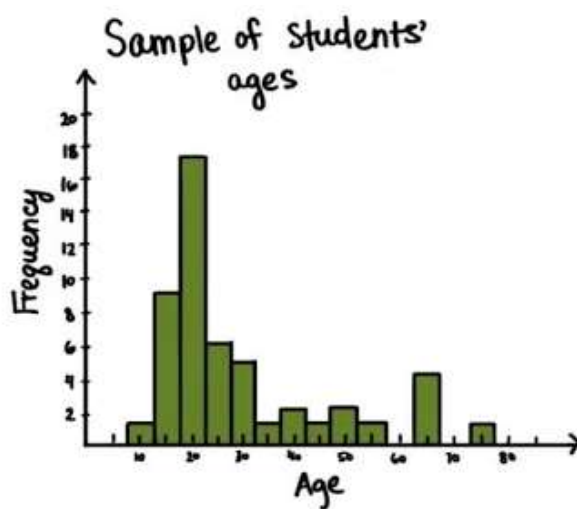
Q: - Okay, So what percentage of students are under 60 years of age?
Remember this is now percentage, not proportion.

Q :- What if we wanted to know how many students are younger than 20?
Can we answer this from the graph? Yes or no?

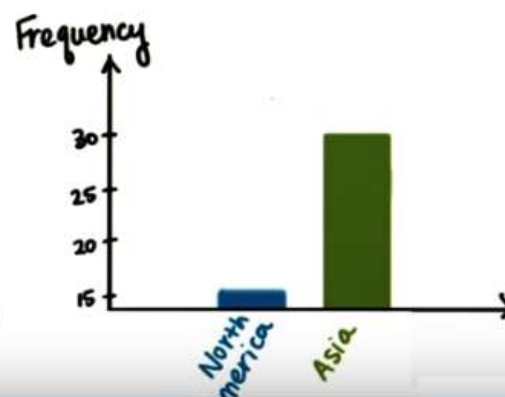
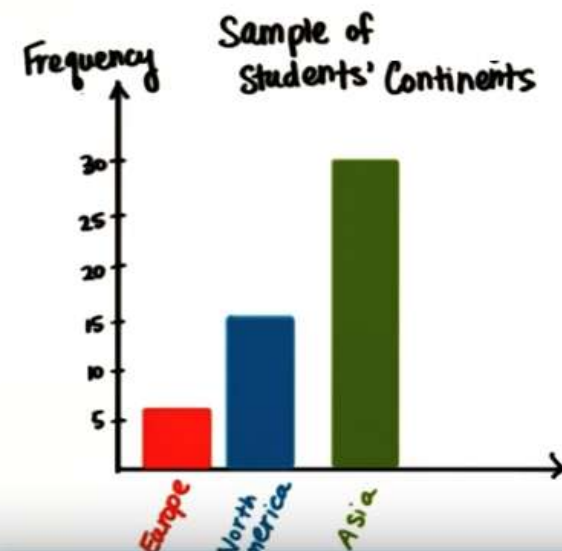
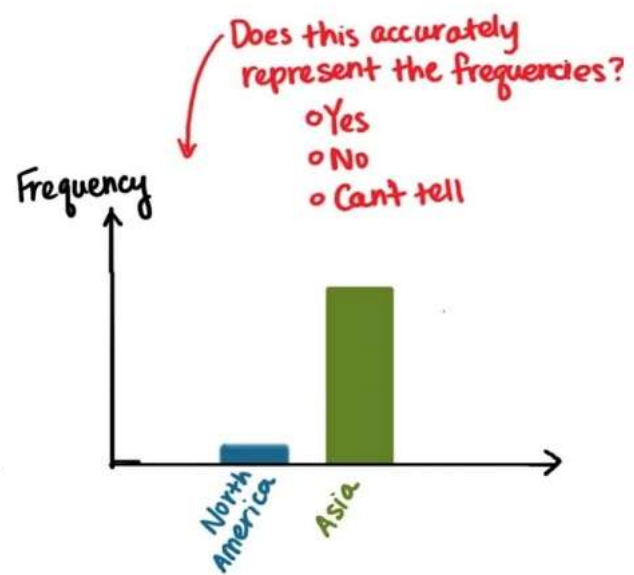
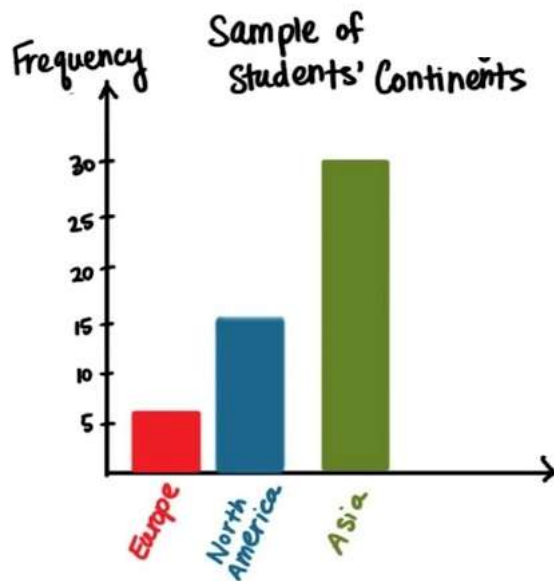
Continent Graph



Q:-What's the difference between these 2 graphs? Just think about it and write your answer.



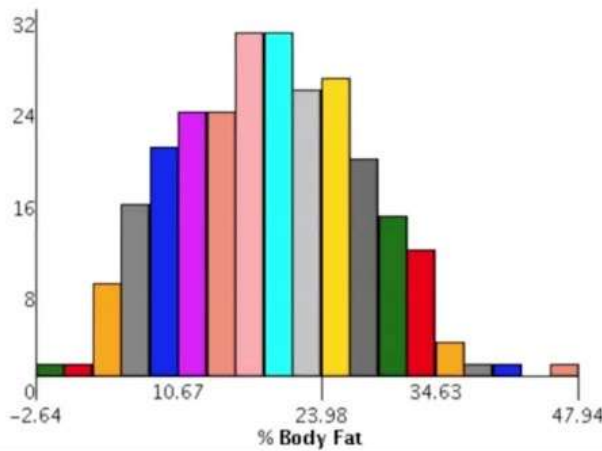
BIASED GRAPHS



Interpret Histogram

Q:- What can be said about men's body fat percentage using this histogram?

Body Fat % of 252 Men

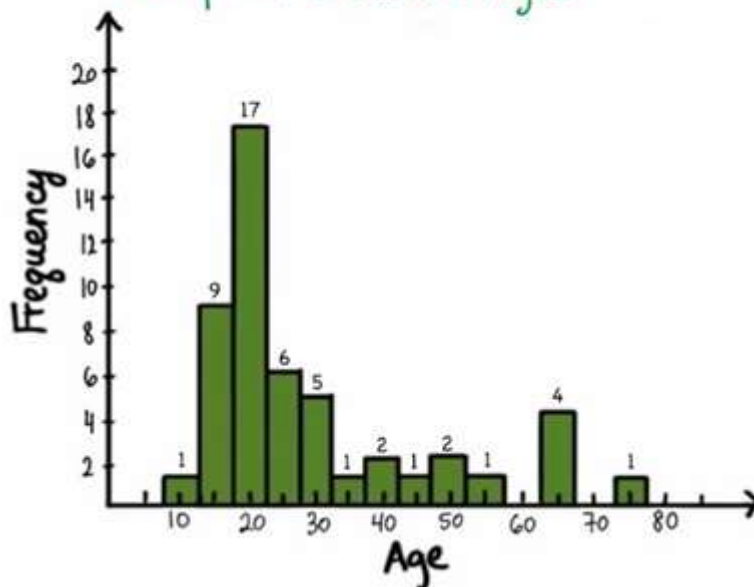


No matter the bin size, what is always true? (Check all that apply.)

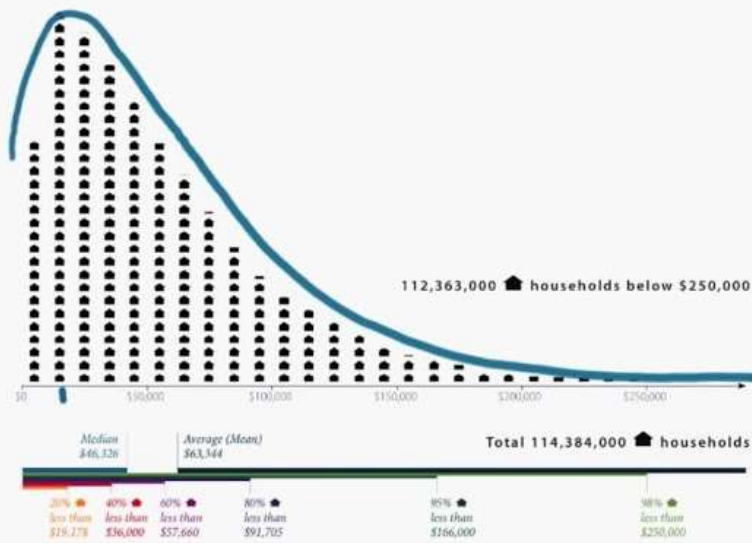
- ☐ Most Scores fall around 20%
- ☐ The Shape is roughly Symmetrical
- ☐ The most common body fat % is 35%
- ☐ Most scores fall in the middle of the distribution
- ☐ There are more scores between 15 and 25 than 35 and 50
- ☐ There are more scores between 0 and 10 than 18 and 24
- ☐ Relatively fewer men have a body fat % above 35% or below 5%

Skewed Distribution

Sample of Students' Ages



2005 United States
Income Distribution (Bottom 98%)
Each ■ equals 500,000 households



What can we say about this distribution?

- ☐ It is symmetrical
- ☐ The most common household income is less than \$25,000 per year
- ☐ Most households make less than \$100,000
- ☐ No households have an income greater than \$250,000