MAT 223, Discussion Questions 9.02

1. What are the steps to create a pie chart?

Calculate the relative frequencies
convert to degrees by multiplying proportions by 360°
divide up the circle appropriately

2. What kind of data can go into a pie chart?

Percents of a whole
usually qualitative data

3. Comment on the quality of the following pie charts. Are they good, bad or misused?

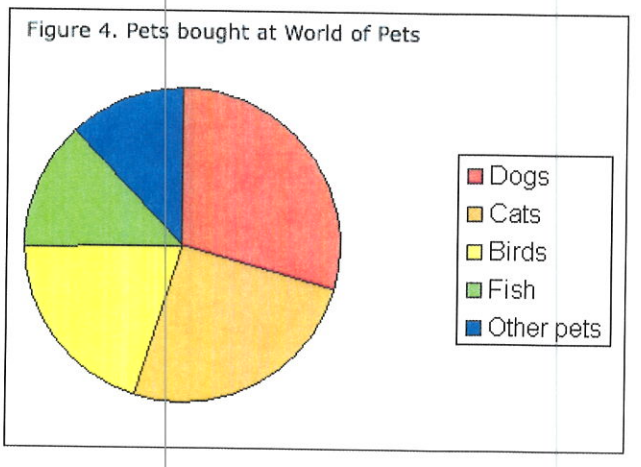
a.

Figure 4: In which domains do happy people enjoy sufficiency?

- Health
- Ecological diversity and resilience
- Psychological wellbeing
- Community vitality
- Living standards
- Time use
- Cultural diversity and resilience
- Good Governance
- Education

Poor use of a pie chart
question does not suggest only one answer per person
total less than 100% (but could be a rounding issue)

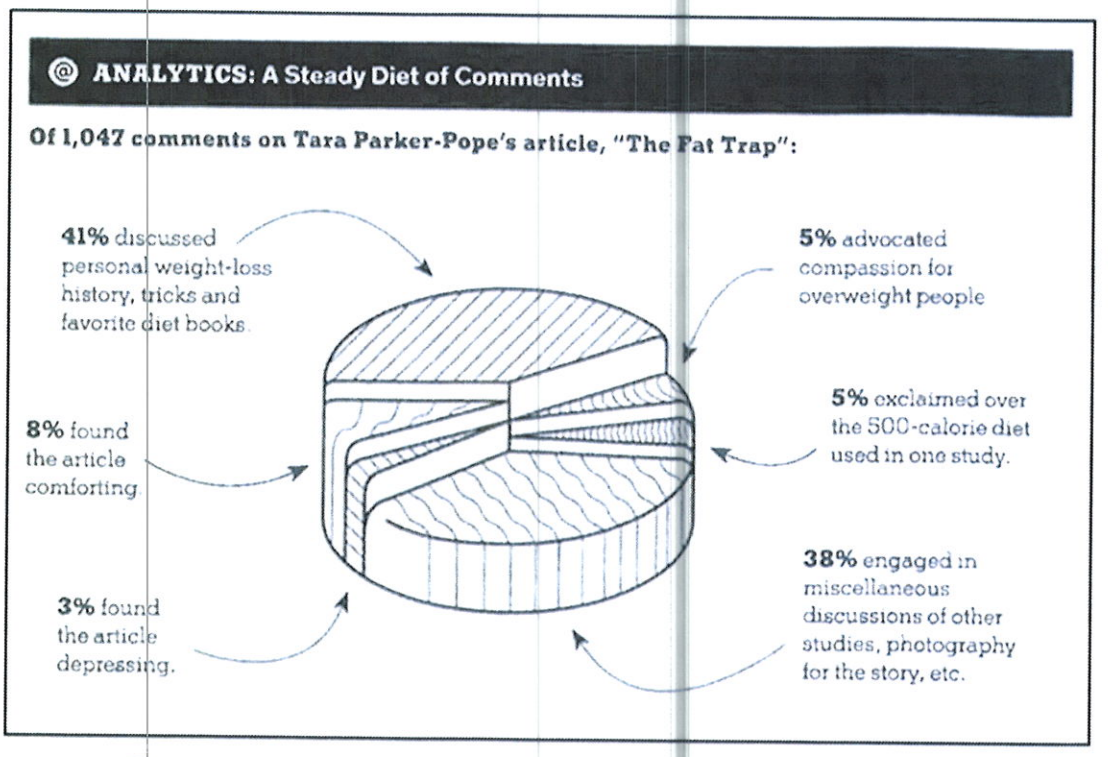
b.



good graph

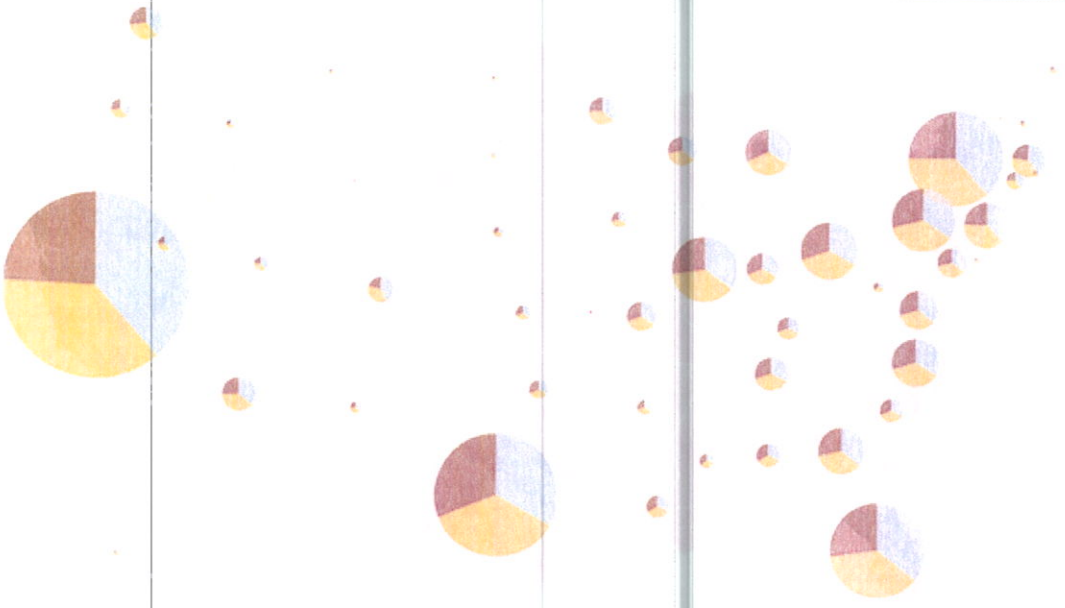
3D is misleading Gurgiles are hard to read.

c.



very poor. What do pie charts represent? Sizes are misleading and graphs overlap each other Some are too small to see

d.



4. What is the difference between a Pareto chart and a bar graph?

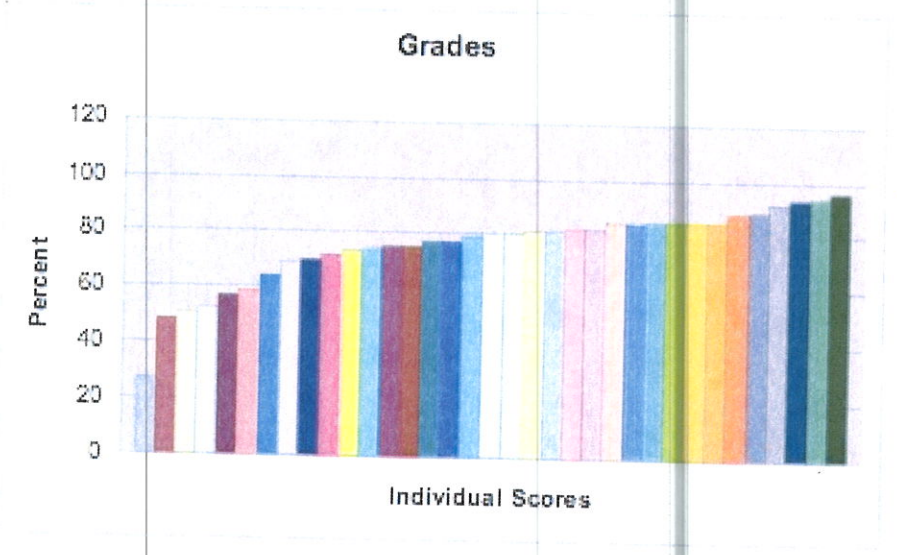
Pareto chart has categories sorted by size a bar graph need not

5. How do histograms differ from bar charts?

histograms plot quantitative data
bar graphs display qualitative data

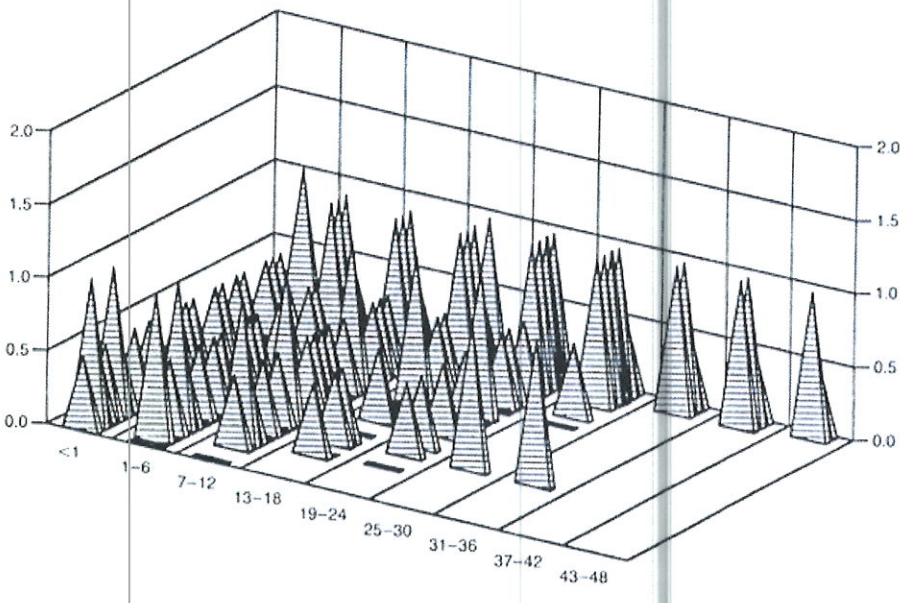
6. For each of the graphs below comment on what type of graph it is (bar, Pareto, histogram), and whether it is good, bad, misused or misleading.

a.



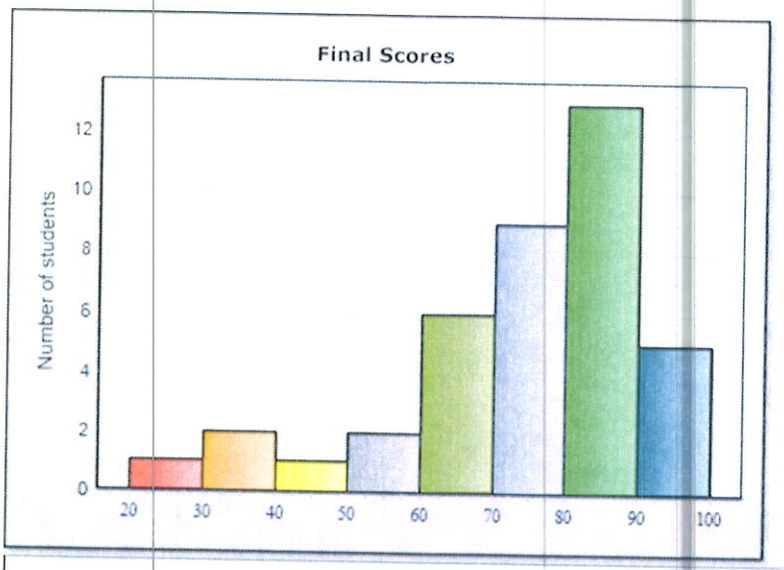
bar
bad
This should be a histogram

b.



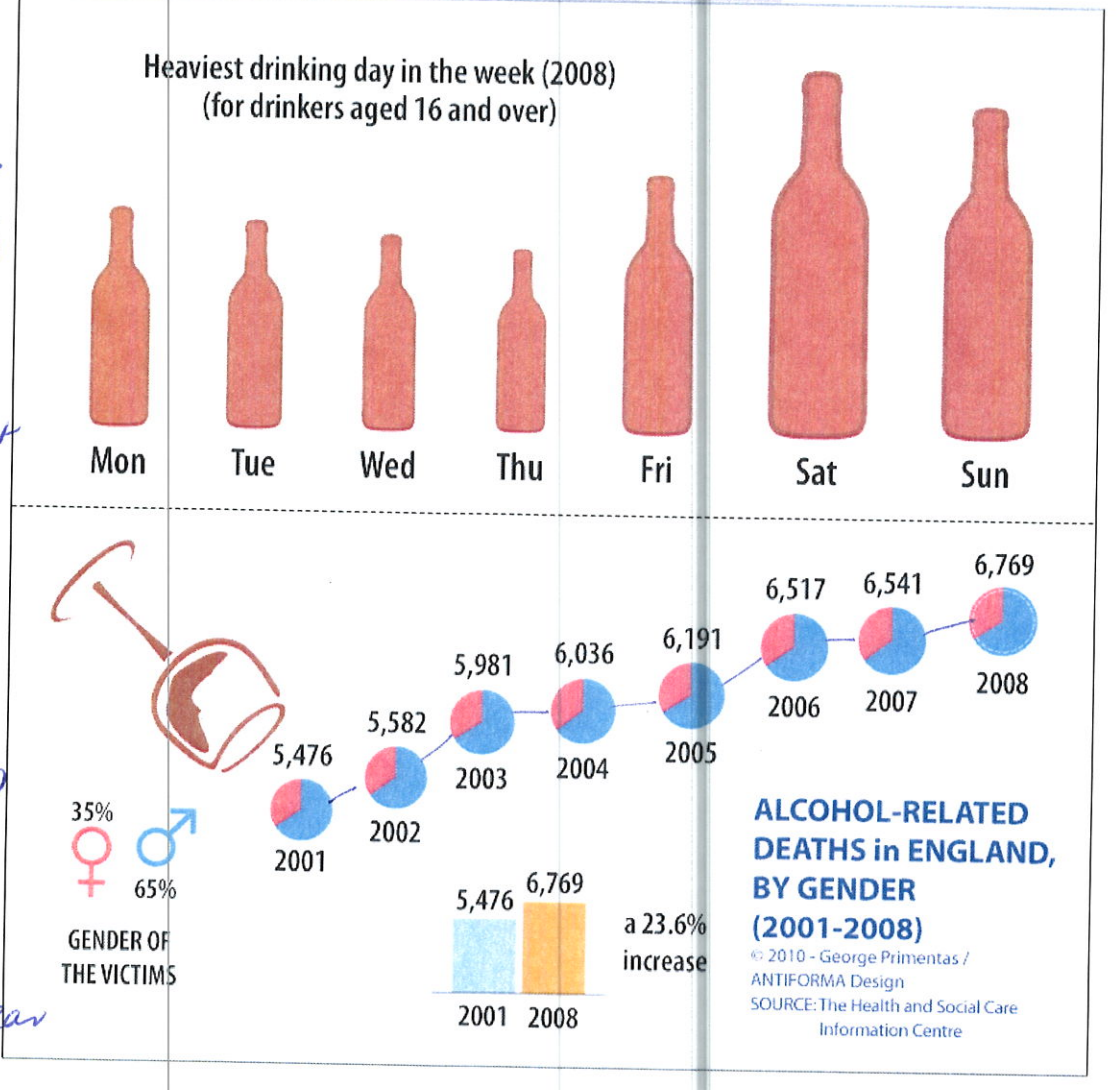
bar,
bad - 3D is hard to read.

c.



good histogram

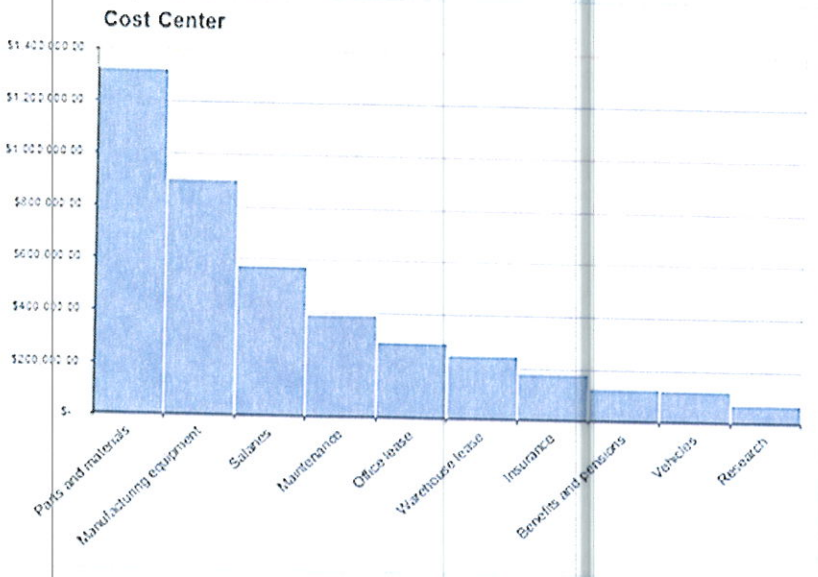
d.



Pictograph misleading
Sat drinking looks 4x bigger than thurs rather than just 2

Pie charts as line graph? Proportions / differences from year-to-year are too similar to tell apart
line graph w/ 2 lines probably better

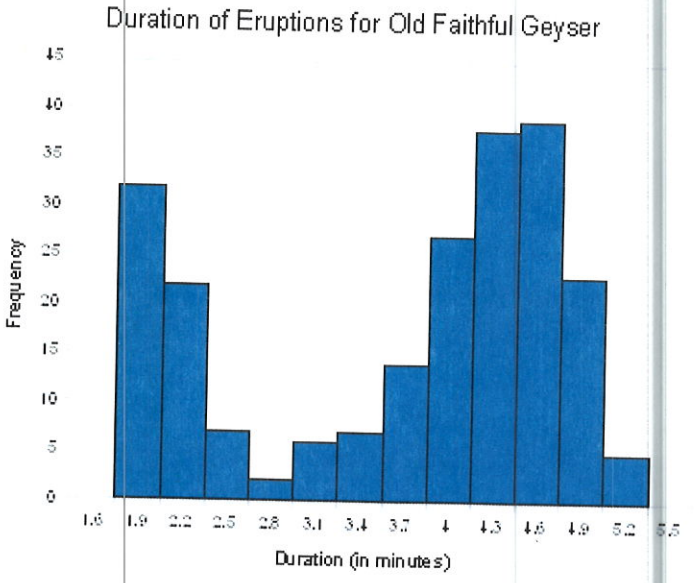
e.



Pareto Chart

good

f.



histogram

good

7. How can we use bar graphs to compare data? Find an example from the web to share.

answers will vary

side-by-side or stacked

8. Read the article at http://qz.com/139453/theres-one-key-difference-between-kids-who-excel-at-math-and-those-who-dont/. What kind of qualitative variables could we be concerned about if we wanted to test this claim?