ᐅ 25 ᐱ

1. **(10 pts.)** Consider the following part of a data set:

Height (in inches)	Zip Code	Class Difficulty (Scale 1-5)	Major'
67	94510	4	Other
63	91604	5	Nursing
8	94102	4	Bus./Fin.
71	94112	3	Undecided
81	94109	1	Science
64	91604	5	Undecided

List all of the variables. Indicate whether each variable is qualitative (categorical) or quantitative (numerical). If the variable is quantitative, tell the units. One of the variables can be considered ordinal – state which one and say why.

variable	type
height	quantitative (units: inches) ✔
zip code	categorical ✔
class difficulty	categorical* ✔
major	categorical ✔

* the 'class difficulty' variable can be considered ordinal. It is categorical in the sense that there are 5 levels (or categories) on the scale; the variable can only be one of five numbers. However it is numerical in the sense that numerical functions can be performed on these variables. For example, the average class difficulty level could be determined for all of the 'who's.' ✔

2. Students in an Intro Stats course were asked to describe their political views as 'Liberal", "Moderate" or "Conservative". Here are the results:

		Politics			
		Liberal	Moderate	Conservative	Total
Sex	Female	56	75	19	150
	Male	19	25	6	50
	Total	75	100	25	200

a) **(3 pts.)** Find the percent of Females who are Liberal. (Show work for partial credit)

$56 \div 150 = 37.3\%$ ✓

b) **(3 pts.)** What percent of Liberals are Female? (Show work for partial credit)

$56 \div 75 = 74.7\%$ ✓

c) **(3 pts.)** What percent of all students are liberal females? (Show work for partial credit)

$56 \div 200 = 28.0\%$ ✓

d) **(6 pts.)** Do *Politics* and *Sex* appear to be independent? Give **statistical evidence** to support your conclusion. To get full credit, you must show all work and explain in words what percentages you are comparing. You are not required to make a graph, but you can!

Liberal Female   Moderate   Conservative
F | $56 \div 75 = 74.7\%$ F $75 \div 100 = 75\%$ F $19 \div 25 = 76\%$
M | $19 \div 75 = 25.3\%$ M $25 \div 100 = 25\%$ M $6 \div 25 = 24\%$

[Conditional Distributions]

Females   M | Males

L $56 \div 150 = 37.3\%$ | L $19 \div 50 = 38.0\%$ ✓

M $75 \div 150 = 50\%$ | M $25 \div 50 = 50.0\%$

C $19 \div 150 = 12.7\%$ | C $6 \div 50 = 12.0\%$

I am gonna compare the political views of all women and compare it to political views of all men.

I looked and calculated the conditional Distributions of females and male's. The percentages shown are very similar (example 37.3% of females are Liberals while 38.0% of males are liberals). Therefore, there doesn't seem to be an obvious association ✓ between the Sex of subject and their political views.

well done!

15