

## AP Statistics

### Homework #8 - Graphical Displays with Categorical Data

Please work out all of these problems on separate paper. Graphs should be sketched BY HAND (not on computer).

Some of you “neat-freaks” may be tempted to use a ruler to sketch some of the graphs... however, be aware that a ruler is NOT allowed on the AP Statistics exam.

1. Two problems from the textbook:

- Chapter 13, #40 “SAT Prep”
- Chapter 3, #18 “Politics”

2. A survey of autos parked in student and staff lots at a large university classified the brands by country of origin, as seen in the table.

		Driver	
		Student	Staff
Origin	American	107	105
	European	33	12
	Asian	55	47

- Create a side-by-side bar graph (using counts) to summarize the data in the table.
  - Create a segmented bar graph (using proportions) to summarize the data in the table.
  - Based on your graph from part (b), does there appear to be an association between the variables “origin” and “driver”? Explain (using complete sentences ☺).
3. Hurricane damage amounts, in millions of dollars per acre, were estimated from insurance records for major hurricanes for the past three decades. A stratified random sample of five locations (based on categories of distance from the coast) was selected from each of three coastal regions in the southeastern United States. The three regions were Gulf Coast (Alabama, Louisiana, Mississippi), Florida, and Lower Atlantic (Georgia, South Carolina, North Carolina). Damage amounts in millions of dollars per acre, adjusted for inflation, are shown in the table below.

HURRICANE DAMAGE AMOUNTS IN MILLIONS OF DOLLARS PER ACRE

	Distance from Coast				
	< 1 mile	1 to 2 miles	2 to 5 miles	5 to 10 miles	10 to 20 miles
Gulf Coast	24.7	21.0	12.0	7.3	1.7
Florida	35.1	31.7	20.7	6.4	3.0
Lower Atlantic	21.8	15.7	12.6	1.2	0.3

- Sketch a graphical display that compares the hurricane damage amounts per acre for the three different coastal regions (Gulf Coast, Florida, and Lower Atlantic) and that also shows how the damage amounts vary with distance from the coast. (PLEASE READ THAT AGAIN CAREFULLY BEFORE FIGURING OUT WHAT TYPE OF GRAPH TO SKETCH)
- Describe differences and similarities in the hurricane damage amounts among the three regions.