

AP STATISTICS

Homework #7 - 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.

0. Three problems from the textbook:

- Chapter 3 (p. 36), #9, #18a-f, #26

1. Researchers at a large college are interested in determining whether having a part-time job is associated with the level of participation in extracurricular activities for students at the college. A simple random sample of students at the college was taken, and the responses of the survey are summarized in the table below.

		Part-time Job?	
		No	Yes
# of extracurricular Activities	None	30	25
	One	62	29
	Two or more	57	11

a) Create an appropriate display to summarize the data in the table that shows the **association*** between having a part-time job and level of extracurricular involvement for these students.

(*Hint: This means that your graph must be broken down by proportions!)

b) Based on your graph from part (a), does there appear to be an association between having a part-time job and level of extracurricular involvement? Write a few sentences describing this association.

2. 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

a) 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 DECIDING ON THE TYPE OF GRAPH TO SKETCH)

b) Describe differences and similarities in the hurricane damage amounts among the three regions.