



Name: _____

Period: _____

8.1 Marginal and Conditional Distributions

The table below shows data for a sample of 1000 students. The students were sorted by school level and whether or not they own a cell phone.

	Elementary	Middle School	High School	Total
Cell Phone	228	194	178	600
No Cell Phone	329	51	20	400
Total	557	245	198	1000

1. Give the marginal distribution of cell phone ownership. Show work (fractions).
2. Give the marginal distribution of school level. Show work (fractions).
3. Draw a bar graph displaying the marginal distribution of school level from question 2. Make sure to use proper labels and scale the y -axis.
4. Give the conditional distribution of cell phone ownership for Elementary students. Show work.
5. Give the conditional distribution of cell phone ownership for Middle School students. Show work.
6. Give the conditional distribution of cell phone ownership for High School students. Show work.
7. Draw a side-by-side bar graph to compare the conditional distributions from questions 4, 5, and 6. Make sure to use proper labels and scale the y -axis.

8. Someone tells you, “More Elementary students than High School students own a cell phone.” Explain why this statement is misleading.

A math teacher is interested in if there is any relationship between whether or not students do all their homework and how well they do on tests. The table below shows how many students received each test grade based on whether or not all of their assignments were turned in.

		Test Grade					Total
		A	B	C	D	F	
Was all homework turned in?	Yes	30	8	4	0	1	43
	No	10	6	4	4	8	32
	Total	40	14	8	4	9	75

For each of the following questions, find the requested percent (show the fraction it came from as work) AND state whether the percent is a marginal or conditional relative frequency.

9. What percent of all students got a B on the test?
10. What percent of students who turned in all their homework got a B or a C on the test?
11. What percent of all students didn't turn in all their homework?
12. What percent of students who didn't turn in all their homework failed the test?
13. What percent of students who got an A turned in all their homework?
14. What percent of all students got a C, D, or F on the test?
15. What percent of students who got a D or an F didn't turn in all their homework?