Functions & Trig Name _____
Probability Tables HW

1.) A simple random sample of adults living in a suburb of a large city was selected. The age and annual income of each adult in the sample were recorded. The resulting data are summarized in the table below.

	Annual Income			
Age Category	$25,000-$35,000	$35,001-$50,000	Over $50,000	Total
21-30	8	15	27	50
31-45	22	32	35	89
46-60	12	14	27	53
Over 60	5	3	7	15
Total	47	64	96	207

If we select a person at random from this sample:

a. What is the probability that a person will be in the 31-45 age category?

b. What is the probability that a person will have an Annual Income between $25,000 – 35,000?

c. What is the probability that a person will be over 60 ***and*** have an income over $50,000?

d. What is the probability that a person will be over 60 ***or*** have an income over $50,000?

e. What is the probability that a person whose income is over $50,000 will be in the 31-45 age category?

2.) A random survey of students at State College were asked about their birth order (first/only child , second child, etc.) and which major they declared.

	Only child/First child	**Second child or later**	**TOTAL**
Math & Sciences	34	23	**57**
Arts	52	41	**93**
Human Ecology	15	28	**43**
Other	12	18	**30**
TOTAL	**113**	**110**	**223**

Suppose we select a student at from this sample:

a. What is the probability we select a Human Ecology student?

b. What is the probability we select a "only child/first-child" student?

c. What is the probability that the person is "only child/first-child" ***and*** a Human Ecology student?

d. What is the probability that the person is "only child/first-child" ***or*** a Human Ecology student?

e. Given that the student is a second child or later, what is the probability they are a Math & Sciences student?

f. Among the Math & Sciences students, what's the probability a student was a second child or later?

g. What is the probability that an Arts student is a "only child/first-child?

3.) A science textbook has four chapters, each with a number of skills problems and of analysis problems. A table represents this information.

Chapter	**Skills problems**	**Analysis problems**	**TOTAL**
Chapter 1	11	12	23
Chapter 2	10	11	21
Chapter 3	6	12	18
Chapter 4	23	4	27
TOTAL	50	39	89

Based on the table, which of the following statements is true?

(a) The probability of Analysis problems coming from Chapter 2 is $\frac{21}{89}$.

(b) The probability of problems in Chapter 1 being Skills problems is $\frac{12}{23}$.

(c) The probability of Analysis problems coming from Chapter 4 is $\frac{4}{39}$

(d) The probability of problems in Chapter 2 being Skills problems is $\frac{2}{3}$.

4.) The table shows the flavors of ice cream and the toppings chosen by people at a party. Each person chose one flavor of ice cream and one topping.

Ice Cream and Topping Selections

		Flavor	
		Vanilla	Chocolate
Topping	Hot fudge	8	6
	Caramel	5	6

Of the people who chose vanilla ice cream, what fraction chose hot fudge as a topping?

(a) $\frac{8}{25}$ (b) $\frac{5}{13}$ (c) $\frac{13}{25}$ (d) $\frac{8}{13}$