Question #1

A social organization was interested in determining if there were various demographic characteristics that might be related to people's propensity to contribute to charities. The organization was particularly interested in determining if individuals above 40 were more likely to contribute larger amounts than individuals below 40. The average contribution in the population was $1,500 and this figure was used to divide the individuals in the sample into two groups, those who contributed large amounts or more than average versus those who contributed less than average. The following table presents a two-way classification of the sample of individuals by contributions and age.

Table 1—Personal Contributions and Age

Personal Contribution	Age		Total
	39 or less	40 or more	
Less than or equal To $1,500	79	50	129
More than $1,500	11	60	71
TOTAL	90	110	200

In addition, the social organization wanted to determine if contributions depended on income and/or age. The following table presents the simultaneous treatment of age and income. The median income in the population was $18,200 and this figure was used to split the sample into two groups.

Table II—Personal Contributions and Age and Income

Personal Contribution	Income				Total	
	Less than Or equal To $18,200		More than $18,200			
	39 or Less	40 or More	39 or Less	40 or More	39 or Less	40 or More
Less than or equal To $1,500	63	22	16	28	79	50
More than $1,500	7	18	4	42	11	60
TOTAL	70	40	20	70	90	110

(a)   Does the amount of personal contributions depend on age? Justify your answer. (10 points)

(b)   Does the amount of personal contributions depend on age alone? Justify your answer. (15 points)