MAT 135, Quiz #8, Spring 2016   Name _____ KEY _____

Instructions: Show all work to receive full credit. You should note any formulas used or calculator functions used, their inputs and outputs. I cannot grade work if I don't know where an answer came from. Be sure complete all parts of each questions, including requests for interpretation and explanations. Be as thorough as possible.

1. Use the table below to answer the following questions:

EYE COLOR	Black	Brown	Blue	Green	Gray	Total
Female	20	30	10	15	10	85
Male	25	15	12	20	10	82
Total	45	45	22	35	20	167

a. What is the probability of having brown eyes in this sample?

$$\frac{45}{167} = 26.9\%$$

b. What is the probability of having blue eyes **and** being female?

$$\frac{10}{167} = .05988 \text{ or } 6\%$$

c. What is the probability of having blue eyes **or** being female?

$$\frac{22+85-10}{167} = \frac{97}{167} = 58.1\%$$

d. What is the probability of having green eyes given that the person is male?

$$\frac{20}{82} = 24.4\%$$

e. According to the data in the table, is having brown eyes independent of gender? Show calculations to explain your reasoning.

$$P(female) = \frac{85}{167} = 50.9\%$$

$$P(female \mid brown) = \frac{30}{45} = 66.7\%$$

No, these probabilities are not equal and so are not independent