Math 3 Name_____Date_____

Long Term Assignment #2

Period_____

1) The Titanic was a British luxury ship that sank on its first voyage in 1912. It was en route from Southampton, England, to New York City. The table below gives some information about the passengers on the Titanic.

Passengers Aboard the Titanic

	Men	Women and Children	Total
Survived	138	354	492
Died	678	154	832
Total	816	508	1,324

Source: www.titanicinquiry.org/USInq/USReport/AmInqRep03.html#a8

a. Suppose a passenger is selected at random. Use the table above to find the probability of each of the following events

i. The passenger is a man.

ii. The passenger survived.

iii. The passenger is a man and survived.

b. Now use your results from Part a and the appropriate form of the Addition Rule to find the probability that a randomly selected passenger is a man or a survivor. Check your answer by adding the appropriate entries in the table.

c. Suppose a passenger is selected at random. Find the probability of each of the following events.

i. The passenger is a woman/child.

ii. The passenger died.

iii. The passenger is a woman/child and died.

iv. The passenger is a woman/child or died.

2. In almost all states, it is illegal to drive with a blood alcohol concentration (BAC) of 0.08 grams per deciliter (g/dL). The frequency table below gives information about the drivers involved in a crash in which someone died.

Drivers Involved in Fatal Crashes

Age of Driver	Total Number of Drivers	Number with BAC $\geq$ 0.08
16–20	5,051	951
21–24	4,597	1,588
25–34	8,610	2,722
35–44	7,757	2,006
45–54	7,664	1,694
55–64	5,276	669
65–74	2,868	199
75+	2,550	85
Total	44,373	9,914

Source: National Highway Traffic Safety Administration, *Alcohol Impaired Driving Traffic Fact Sheet*, 2009

Suppose that you select a driver at random from these 44,373 drivers involved in fatal crashes.

a. Find the probability that the driver was age 16 – 20.

b. Find the probability that the driver was age 21 – 24.

c. Find the probability that the driver had a BAC of 0.08 or greater.

d. Find the probability that the driver was age 16 – 20 or was age 21 – 24.

e. Can you find the answer to Part d using just your probabilities from Parts a and b? Why or why not?

f. Find the probability that the driver was age 16 – 20 or had a BAC of 0.08 or greater.

g. Can you find the answer to Part f just by adding the two probabilities from Parts a and c? Why or why not?