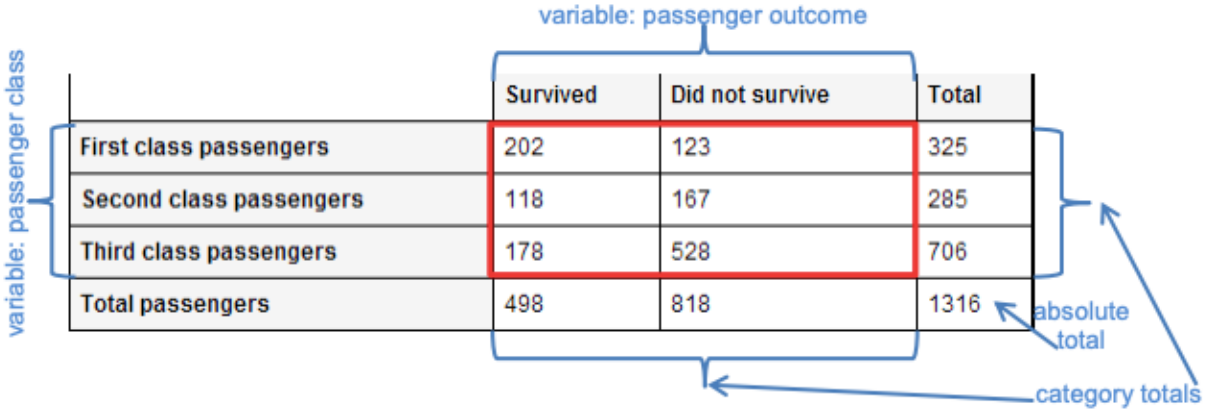
FST | Name:
PS 7.1 | Date: | Block:

Problem Set 7.1

1.) Give an example of an event with: (and be prepared to share and discuss in the next class)
a) relative frequency = 1 b) relative frequency = 0

2.) The data below describes passenger survival from the Titanic. (note, the data excludes crew members). One of the reasons there were so many fatalities was that for aesthetic reasons the ship did not carry enough lifeboats for its capacity. There was only room for a maximum of 52.9% of the boat's population in the lifeboats, but the survival rate was much less than that.
Source: The Real Reason for the Tragedy of the Titanic. The Wall Street Journal, n.d.Web. 2 Mar. 2013.

This data is organized in a **two- way table** – a table that classifies data based on possible categories for two different variables at the same time, one by rows and one by columns. It also includes the totals for each category and an absolute total.



	Survived	Did not survive	Total
First class passengers	202	123	325
Second class passengers	118	167	285
Third class passengers	178	528	706
Total passengers	498	818	1316

Data Table Source: *Common Core State Standards - Illustrations*. Illustrative Mathematics, n.d. Web. 27 Feb. 2013. <http://www.illustrativemathematics.org/illustrations/949>.

a) What is the sum of the numbers in the red box? Why?

b) What does the number 498 in the bottom row represent?

c) What is the relationship between the four numbers in the last column?

d) What's wrong with this question: "What is the probability that any passenger survived?"

e) Does this table give relative frequencies? Explain.

f) What was the relative frequency of survival?

g) What was the relative frequency of third-class passengers on the ship?

h) What was the relative frequency of third-class survivors?

i) If we only consider survivors, what was the relative frequency of third-class passengers?

j) Which is bigger between your answers for *h* and *i*? Why?

k) Did class of passenger affect the likelihood of survival? Justify your answer with calculations, and if it did, provide a possible reason why that may have been the case.

l) Give one other example of other types of questions about relative frequency that can be answered with this table and answer your question. Show your work.

3) The table shows the relative frequencies of the ages of the students at *Porter Gaud High School.*

If a student is randomly selected from this school, find the probability that

a) the student is 15 years old

b) the student is 16 years of age or older

There are 1200 students at Porter Gaud High School.
c) Calculate the number of 15 year old students.

Age (in years)	**Relative Frequency**
13	0.11
14	0.30
15	0.23
16	0.21
17	0.15
Total	**1**