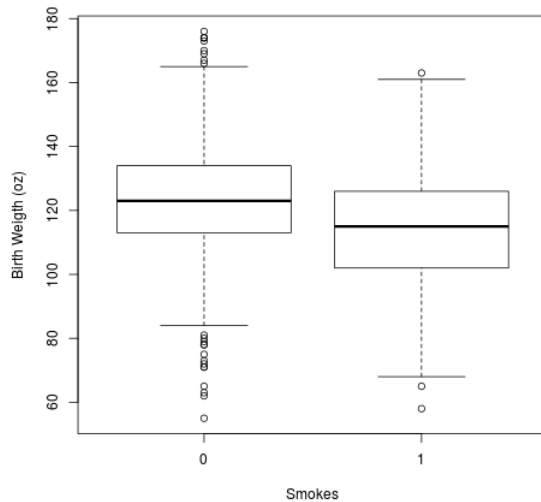This test has 9 questions, for a total of 52 points and 0 bonus points.

Name: _____

1. (5 points) Answer the questions using the graph. (a) What sort of graph is it? (b) Identify all variables. (c) How many distributions are pictured? (d) Describe the distributions.

2. (3 points) Identify the types of variables (there are two major types) in the data matrix below. Be as descriptive as possible i.e. if you can further specify the type of variable do so. The data is from the American Community Survey 2012.

	income	employment	hrs_work	race	age	gender	citizen	time_to_work	lang	married	edu	disa
1	60000	not in labor force	40	white	68	female	yes		english	no	college	no
2	0	not in labor force		white	88	male	yes		english	no	hs or lower	yes
3				white	12	female	yes		english	no	hs or lower	no
4	0	not in labor force		white	17	male	yes		other	no	hs or lower	no
5	0	not in labor force		white	77	female	yes		other	no	hs or lower	yes

3. (3 points) The graph below is made from the Titanic data matrix. Answer the questions using the graph. (a) What sort of graph is it? (b) Identify all variables. (c) Which group is smallest and which is largest? Describe it using the variables.

Titanic
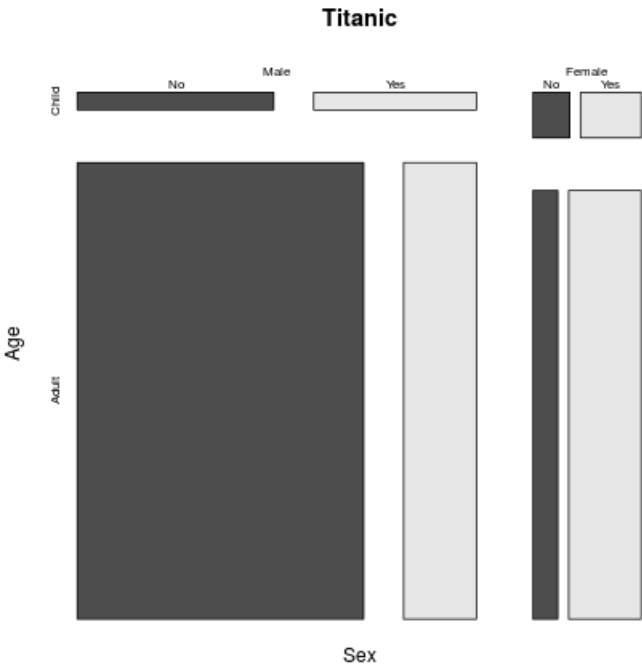
4. (3 points) Using the graph above and its variables. Describe which group you would most want to be and which group you would least want to be in and why.

5. Use the table to answer the questions. The data was from a gender discrimination case against a bank which allegedly had a policy of not promoting women.

   (a) (3 points) What is the probability of being promoted if you are female? What sort of probability is this (Marginal, Joint, Conditional)?
   (b) (3 points) What is the probability of being male if you were promoted? What sort of probability is this?
   (c) (3 points) What is the probability of being female and not promoted? What sort of probability is this?
   (d) (3 points) What is the probability of being male and not promoted? What sort of probability is this?
   (e) (3 points) What is the probability of being promoted? What sort of probability is this?
   (f) (3 points) Do you think there is any evidence of discrimination? Why or why not?

	female	male
not	10	3
promoted	14	21

6. (5 points) Answer the questions using the graph. (a) What sort of graph is it? (b) Identify all variables. (c) How many distributions are pictured? (d) Describe the distributions.

Birth Weight in Ounces
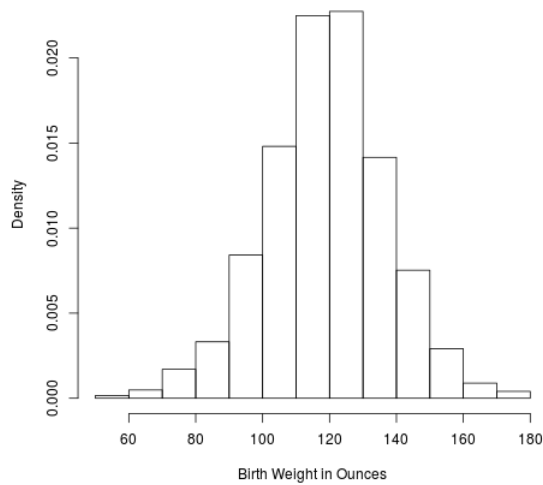
7. Use the table (which is from the same data as the graph above) and the graph to answer the questions.

   (a) (3 points) Approximately what percentage of the data is between 140 and 150? Use the graph.

   (b) (3 points) Approximately what percentage of the data is below 100? Use the table.

   (c) (3 points) Approximate the median using the table.

Bin	Frequency
[75,100]	56
(100,125]	555
(125,150]	453
(150,175]	95
(175,200]	31
(200,225]	8
(225,250]	2

8. (3 points) What does the R command `cats <- c(1,0,0,0,1,3,0,0)` do?

9. (3 points) Assuming that the previous command was executed first, what does the R command `hist(cats)` do?