Z and T Review

1. Informal observation led a counselor to believe that when clients arrive late for appointment, males arrive later tham females. She decided to conduct a test of this o see if there were reliable sex differences in later arrivals. She records for each client that was late, the number of minutes late to their appointment.

A. Identify the independent variable(s)
B, Identify the dependent variables(s)
C. Is this a between or within subjects design, why
D. Is this an experimental or correlational study, Why?
E. State the null and alternative hypothesis, both symbolically and in words
F. calculate the appropriate t statistic and test at α=.05. What do you conclude.

Males	**Females**
12	10
10	7
14	7
9	9
11	6
10	9

2. At the begining of the school year a small random sample of 10 3rd graders were given an hour long arithmatic test. The same students were asked to complete a second form of the test at the end of the school year. The principal wanted to know if the students had improved in their arithmatic abilities?

A. Identify the independent variable(s)
B, Identify the dependent variables(s)
C. Is this a between or within subjects design, why
D. Is this an experimental or correlational study, Why?
E. State the null and alternative hypothesis, both symbolically and in words
F. calculate the appropriate t statistic and test at α=.05. What do you conclude.

First Test	**Second Test**
30	32
46	45
34	40
33	34
27	25
32	39
36	36
37	41
33	38
36	32

3. Recent pressure on the Indianapolis Public school system from the governor and state legislature have lead to an increasing use of standardized testing to assure that students are learning at a rate consistent with other school state school districts. The state uses the I-Step test which is scaled in grade equivalence units with a standard deviation of 1.50 (that is 5th graders have a μ of 5 and a σ of 1.50). A sample (N=185) of last years IPS scores for 5th graders had a mean of 4.85. Is there any evidence that IPS schools are performing any different form the state average?

A. Identify the independent variable(s)
B, Identify the dependent variables(s)
C. Is this a between or within subjects design, why
D. Is this an experimental or correlational study, Why?
E. State the null and alternative hypothesis, both symbolically and in words
F. calculate the appropriate z statistic and test at α=.05. What do you conclude.
G. why z and not t?

Training Study

Interactive	Workbook	None
2.90	3.00	3.20
3.70	3.30	2.90
4.00	2.20	3.40
3.60	3.80	2.00
2.90	2.20	1.80

Mean=				
Stdev=				
n=				

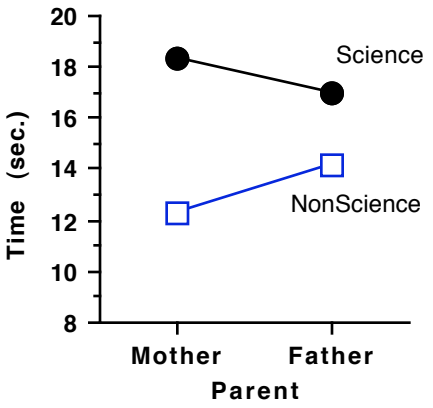
Source	SS	DF	MS	F
SS Betwn				
SS Within				
SS Total				

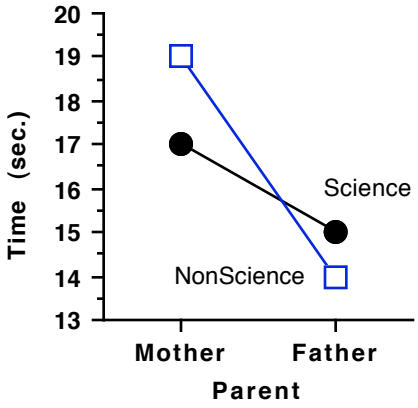
ANOVA Description

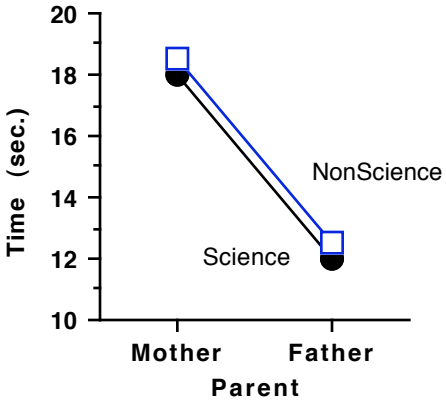
A researcher is interested in how parents might influence children's selection of gallery elements in a museum to explore. The researcher divides the elements in to two types, those that are about science and those that are about other topics (non-science). The researcher tracks all children through the gallery and records how long they stay at each element. The researcher also notes which parent was with the child at each element. The researcher is interested in whether children stay longer at science (as compared to non-science) exhibits when they are with their mother or their father.

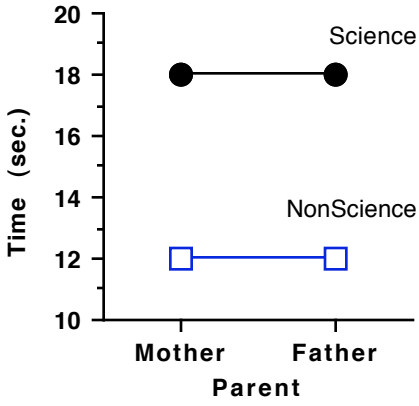
1. Describe the IVs and DV for the study above, within/between, corr/exp. Describe the design in ANOVA terms (symbolically and by type).

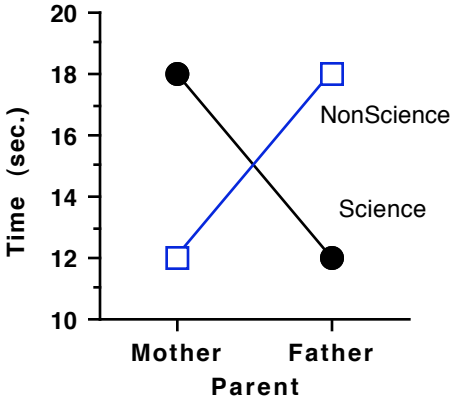
2. For each graph below, tell what effects from the ANOVA are likely to be significant.

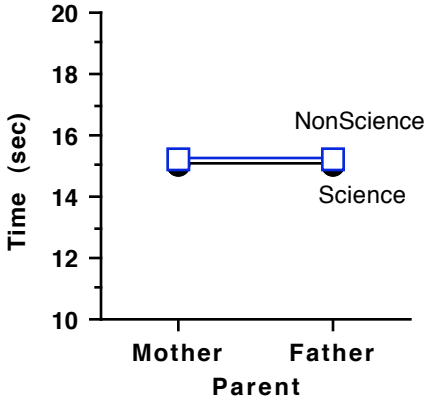












Regression Homework

A company wants to use a short test of mechanical ability to identify candidates for assembly line work. Data from past applicants that have been hired is given below. The test score (X) is then correlated with the number of parts made per hour on the line.

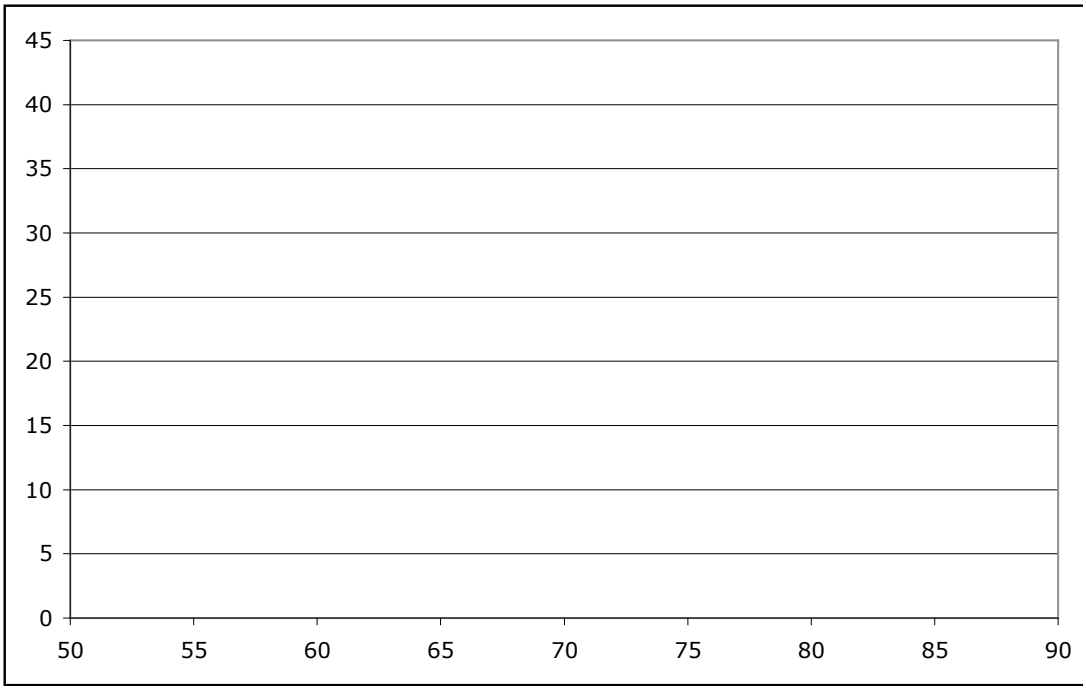
a. Produce a scatterplot of the data on the graph below and plot the regression line and draw on graph

b. report the slope and intercept and interpret them

c. How much variability in performance on the assembly line is accounted for by the test?

d. If the company want to hire only people who will be able to produce 30 or more parts per hour in the future, what is the minimum test score the applicant would need?

X	Y
84	36
81	41
80	38
77	30
75	31
73	28
73	32
72	23
72	26
71	20
71	29
70	33
69	26
68	18
67	34
65	19
64	36
63	25
62	28
60	22



Mean of X ____Stdev= ____
Mean of Y ____ Stdev= ____

r= _____
r^2= _____
b= _____
a= _____