

Homework #2 Fall'09

The solution to Question #7 CAN be done directly on the homework paper – but all others must be recopied and done normally. You WILL need the data tables as part of the answers – but this will let me know if there are carelessness issues that have to be dealt with. By the end of class Tuesday you will be able to do all of these.

Problem

1. It is families' weekend and Sally shows her parents her standing in each of her classes. Using only this data, make a direct comparison between scores to determine which class is she doing the best in and which one the worst?

JUSTIFY your answers!

Class	Class Mean score	Class Standard Deviation	Sally's score in class
LATIN	50	5	57
STATISTICS	100	20	85
BASKET WEAVING 101	300	50	200
ADVANCED CALCULUS	150	30	95

2. Over the years, the scores on the final exam in General Psychology have been normally distributed with a mean of 75 and a standard deviation of 8.
 - a) What proportion would be expected to score between 70 and 85?
 - b. Using the information in part a.... what are the upper and lower boundaries surrounding the middle 50% of the curve ... i.e. what raw scores are associated with the 25th and 75th percentiles?
3. For the following questions assume that you have a normally distributed set of data that results in a sample that has a mean of 200 and a standard deviation of 35.
 - (A) What percentile of scores falls between the raw scores of 162 and 215?
 - (B) We also have a score of 235. What percent of the scores fall below this value?
 - (C) Individuals who score in the bottom 15% of the distribution are to be asked to leave the group...what raw score corresponds to this bottom 15%?
4. A discrimination-minded lawyer was trying to establish as fact one of the most prevalent kinds of discrimination which he had named "alpha discrimination." This is discrimination based on the alphabetical position of the last name. The names below are WWII buck sergeants and the numbers are the months that were taken to be promoted from corporal to sergeant.

Friedman (9), Bums (4), Malinvaud (11), Leontieff (10), Shumpeter (20), Heilbronner (7), Galbraith (8), Ezekiel (6), Papandreou (14), Ohlin (18), Rybczynski (16), Kalecki (14).

 - a) What is the correlation between order of names and promotion times?
 - b) Address the question of whether or not alpha discrimination happens.

5. Although you've been lead to believe that the faculty of SBC are caring and sharing individuals, you believe that they have been eating more than their fair share of chicken fingers on chicken finger day at Prothro. You stop a random assortment of people and count the number of chicken fingers on their plates and collect the data in the table below.

Subj #	Status	#of chicken fingers
1	Student	8
2	Student	7
3	Student	4
4	Student	3
5	Student	6
6	Student	4
7	Student	7
8	Student	6
9	Student	5
10	Faculty	15
11	Faculty	4
12	Faculty	1
13	Faculty	2
14	Faculty	3
15	Faculty	3

- a) What is the relationship between SBC status (faculty or student) and the number of chicken fingers consumed?
- b) What does this mean?
- c) For 1 extra credit point ... which score probably belongs to Dr. Loboschefski? Justify your response.

6.

You believe that couples that have the most in common are the most likely to find happiness in a relationship (feeling that the adage of "opposites attract" is just a myth). In order to test this out, you ask couples to answer a number of questions on a wide range of topics and give them a score based on their overall agreement (X). Then you ask them to fill out a questionnaire that quantifies their level of attraction to their mate.

- a) **What is the relationship between similar attitudes and attraction?**
- b) **What do these findings mean?**
- c) **What is the coefficient of NON-determination**

X "agreement score"	Y "attraction score"
20	8
5	7
10	6
13	8
9	2
18	9
6	5
0	1
4	5
5	6

7. An experimenter wanted to determine whether a paper-and pencil test of spatial-relations ability was useful in the real world. He gave a test to 32 children. He then took the children (in groups) into a large two-story house and organized games of hide and seek. After an hour of play, he administered a test that determined whether the children had learned the spatial organization of the house. What is the correlation between the paper task and the real world application.

Subject	Paper-Pencil Test	House Test
1	41	85
2	23	64
3	36	70
4	28	60
5	39	90
6	48	95
7	42	92
8	35	70
9	33	72
10	21	52
11	33	65
12	16	40
13	21	53
14	20	56
15	35	67
16	45	90
17	35	80
18	29	75
19	19	60
20	33	68
21	43	91
22	40	87
23	27	50
24	25	63
25	36	83
26	49	94
27	36	85
28	15	60
29	39	79
30	29	64
31	36	80
32	<u>33</u>	<u>75</u>