

Psychology Test

1. High school GPA, Achievement test scores, and College GPA were obtained for the following students. Their scores are as follows:

#	HSGPA	ACT	CGPA	#	HSGPA	ACT	CGPA	#	HSGPA	ACT	CGPA
5	2.8	19	2.4	336	4.0	32	3.8	501	3.3	29	3.0
41	2.8	20	3.1	358	2.6	17	3.2	555	3.8	23	3.2
56	2.2	18	3.1	375	2.9	20	1.2	574	3.1	19	2.3
104	3.8	28	3.8	379	3.8	24	3.0	585	3.0	18	2.5
106	2.0	16	.6	385	3.4	17	3.4	591	2.5	18	3.1
142	2.5	20	2.4	388	3.8	27	3.5	640	2.8	23	1.3
154	4.0	31	3.4	390	2.9	17	2.0	641	3.7	26	3.5
171	3.6	23	3.7	410	3.2	19	2.6	651	2.7	19	2.5
181	3.1	28	3.1	428	3.8	21	2.9	656	2.3	18	2.1
184	2.5	20	2.5	441	3.1	24	3.3	714	4.0	31	3.5
241	2.9	19	1.9	453	2.3	20	2.2	763	3.6	26	4.0
255	2.6	21	2.7	458	2.9	23	1.9	775	3.9	27	3.1
266	2.1	19	1.9	472	2.6	18	2.8	776	3.5	26	3.8
								796	4.0	28	3.8

- a. Perform a descriptive workup on these scores, obtaining means and standard deviations on all three variables and Pearson r's between HS GPA and COL GPA and between ACT and COL GPA. Put the results in the appropriate part of the answer sheet. Carry out to 3 decimal places.
- b. Create two scatterplots - one for COL GPA vs. HS GPA and the other for COL GPA vs. ACT. Treat COL GPA as the dependent variable in both – that is as the variable to be predicted. Create the scatterplots **by hand** on the answer sheets. Put the best fitting straight line on the scatterplot.
- c. Suppose a student has obtained a high school GPA of 3.2. What would that student's predicted college GPA be? Use the formula method to create the predicted Y.
- d. Suppose a student has obtained a 28 on the ACT. What would that student's predicted college GPA be? Use the formula method to create the predicted Y.
- e. State which is the better predictor of COL GPA - HS GPA or ACH TEST. Give the basis for your answer.

2. A consumer magazine recently published data on popular cereals. The magazine had a panel of judges rate the taste (flavor and texture) of popular raisin bran and flake/nut cereals. The taste ratings of the raisin bran cereals ranged from a high of 76 to a low of 52. The magazine also obtained information on nutritional and other characteristics of the cereals - price, recommended serving size, calories, fat, fiber, and sugar content.

Suppose three magazine staffers were arguing about what determined taste. Judy said that the taste scores were most highly related to the sugar content of the cereal. Jim said that the people on the panel were really sensitive to the fat content of the cereals and that the taste ratings were most highly related to fat. Jerry, on the other hand, said that it was fiber - that the panel's ratings were really judgements of fiber content.

Using correlation analysis, determine which of the three characteristics - sugar, fat, or fiber – was most highly related to the taste ratings. The data are below.

<u>Cereal</u>	<u>Category</u>	<u>Taste</u>	<u>Price</u>	<u>Serve</u> <u>Size</u>	<u>Calories</u>	<u>Fat</u>	<u>Fiber</u>	<u>Sugar</u>
General Mills Total	Raisin Bran	76	22	1.00	180	1.00	5.00	20.00
Sam's American Choice	Raisin Bran	73	10	1.00	200	1.00	5.00	22.00
Kellogg's	Raisin Bran	73	14	1.00	170	1.00	7.00	18.00
Publix	Raisin Bran	70	10	.75	253	1.33	8.00	21.33
Pathmark	Raisin Bran	67	11	.75	253	1.33	9.33	22.67
Lady Lee (Lucky's)	Raisin Bran	67	10	.75	253	1.33	8.00	21.33
Pathmark Preferred Extra Raisin	Raisin Bran	67	16	.75	280	1.33	10.67	26.67
Kountry Fresh (Winn Dixie)	Raisin Bran	67	10	.75	253	1.33	8.00	21.33
Post Premium	Raisin Bran	64	14	1.00	190	1.00	8.00	20.00
Stop & Shop	Raisin Bran	64	11	.75	253	1.33	8.00	21.33
Janet Lee (Albertson's)	Raisin Bran	64	12	.75	253	1.33	8.00	21.33
Kroger	Raisin Bran	64	11	1.00	180	1.00	7.00	16.00
Safeway	Raisin Bran	64	13	1.25	160	.80	5.60	14.40
Good Day (Albertson's)	Raisin Bran	61	16	1.00	200	1.00	8.00	19.00
Jewel	Raisin Bran	61	11	1.00	180	1.00	7.00	16.00
America's Choice	Raisin Bran	55	14	1.00	180	1.00	7.00	16.00
Erewhon Whole Grain	Raisin Bran	55	23	1.00	170	1.00	6.00	8.80