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Education Measurement (EPSY – 6303) Assignment 1

1. Calculate descriptive statistics for READING, WRITING, MATH, and SCIENCE

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
READING	600	28.3	76.0	51.902	10.1030	102.070
WRITING	600	25.5	67.1	52.385	9.7265	94.604
MATH	600	31.8	75.5	51.849	9.4147	88.637
SCIENCE	600	26.0	74.2	51.763	9.7062	94.210
Valid N (listwise)	600					

2. Calculate the correlations among READING, WRITING, MATH, and SCIENCE

Correlations

		READING	WRITING	MATH	SCIENCE
READING	Pearson Correlation	1	.629**	.679**	.691**
	Sig. (2-tailed)		.000	.000	.000
	N	600	600	600	600
WRITING	Pearson Correlation	.629**	1	.633**	.569**
	Sig. (2-tailed)	.000		.000	.000
	N	600	600	600	600
MATH	Pearson Correlation	.679**	.633**	1	.650**
	Sig. (2-tailed)	.000	.000		.000
	N	600	600	600	600
SCIENCE	Pearson Correlation	.691**	.569**	.650**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	600	600	600	600

**. Correlation is significant at the 0.01 level (2-tailed).

3. Develop a linear regression model, treating CIVICS as the dependent variables and READING, WRITING, MATH, and SCIENCE as the independent

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	12.018	1.936		6.208	.000
	READING	.261	.048	.267	5.478	.000
	WRITING	.303	.043	.298	6.969	.000
	MATH	.106	.049	.101	2.164	.031
	SCIENCE	.099	.046	.097	2.123	.034

a. Dependent Variable: CIVICS

a. What is the estimated regression equation?

$$\hat{y}_{CIVICS} = 12.018 + 0.261x_{READING} + 0.303x_{WRITING} + 0.106x_{MATH} + 0.099x_{SCIENCE}$$

b. How would you characterize the relationship between the two variables?

- Off the predictors, all are statistically significantly (with a level of 0.05) related to CIVICS
- Each of the statistically significant variables has a positive relationship with CIVICS, meaning that larger values of Reading, writing, math science scores are associated with a larger CIVICS value