

INTRODUCTION TO BEHAVIOR GENETICS

PSYCH 3102

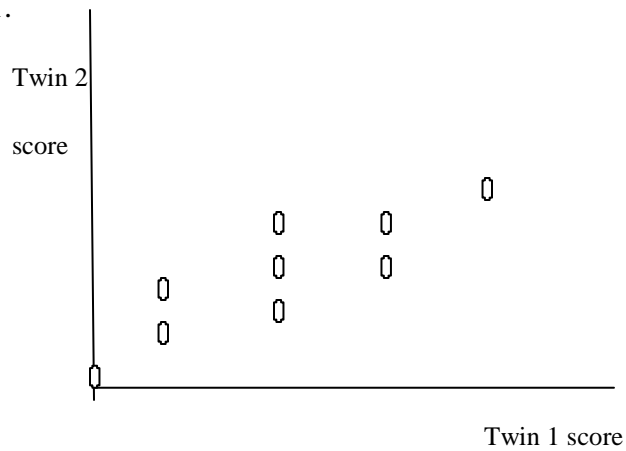
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HOMEWORK # 1

ANSWER KEY

1. You need to be familiar with statistical concepts like mean, variance, covariance, correlation, normal distribution. Taking Psych stats simultaneously with this course will not work – we will use the stats before you cover them in class. Courses other than Psych stats are perfectly acceptable provided you have knowledge of the preceding concepts.
2. Range is +1 to -1 (± 1)
3. a. 20 (0.02 is the same as 2 in 100, 20 in 1000)
b. 0.0004 (2 outcome As would have $0.02 \times 0.02 = .0004$ probability)
4. 0.8 is a moderate/high correlation, so it would indicate that the 2 variables were closely related
5. 0.68 (68%)
6. 0.04-05 (4-5%)
7. Correlation (r) = 0.5 [covariance of $xy \div \sqrt{(\text{var}_x \times \text{var}_y)}$]
8. Regression of Y on X = 0.75 [$\text{cov}_{xy} \div \text{var}_x$]
9. Mean (First twins) = 2 [sum of all X values $\div n = 32/16 = 2$]
10. Mean (Second twins) = 2 [sum of all Y values $\div n = 32/16 = 2$]

11.



$$12. \text{Var}_X = 16 / 15 = 1.07 \quad \frac{\sum (x_i - \text{mean } X)^2}{n - 1}$$

$$\text{Var}_y = 16 / 15 = 1.07 \quad \frac{\sum (y_i - \text{mean } Y)^2}{n - 1}$$

$$13. \text{Cov}_{xy} = 12 / 15 = 0.8 \quad \frac{\sum (x_i - \text{mean } X) (y_i - \text{mean } Y)}{n - 1}$$

$$14. \text{Corr } (r) = 0.75 \quad \frac{\text{cov}_{xy}}{\sqrt{\text{var}_x \times \text{var}_y}}$$