Math problem

Science, Mathematics

4. Suppose you administered an anxiety test to a large sample of people and obtained normally distributed scores with a mean of 45 and standard deviation of 4. Do not use web-calculator to answer the following questions. Instead, you need to use the Z distribution table in Appendix A in Jackson's book.

a. If Andrew scored 45 on this test. What is his Z score?

Z= (μ-x)/s = (45-45)/4= 0

b. If Anna scored 30 on this test. What is her Z score?

Z= (μ-x)/s = (30-45)/4 = 3. 75

c. If Bill's Z score was 1. 5, what is his real score on this test?

μ = (Z*s)/x = (1. 5*4)/45= 0. 1333

d. There are 200 students in a sample. How many of these students will have scores that fall under the score of 41?

The z-score for 41= (41-45)/4

=-1

Decimal For a s. d of -1 from the table= . 159

= 0. 159*200= 31. 8= 31 students

5. The table below shows Psychology exam scores, Statistics Exam scores, and IQ scores for a random sample of students. What can you observe in the relationship between IQ and psychology, psychology and statistics, and IQ and statistics? Using a web-calculator, obtain the Pearson's r and coefficient of determination for the following relationships.

a. Between the IQ and psychology scores

r= 0. 5923

Online calculator: http://www. meta-numerics.

net/Samples/BivariateSampleCalculator. aspx

R2 = 0. 3508

Online calculator: http://easycalculation. com/statistics/r-squared. php

b. Between the IQ and statistics scores

r= 0. 7366

Online calculator: http://www. meta-numerics.

net/Samples/BivariateSampleCalculator. aspx

R2= 0. 0318

Online calculator: http://easycalculation. com/statistics/r-squared. php

c. Between the psychology scores and statistics scores.

r= 0. 7104

Online calculator: http://www. meta-numerics.

net/Samples/BivariateSampleCalculator. aspx

R2= 0. 3134

Online calculator: http://easycalculation. com/statistics/r-squared. php

6. In a study on caffeine and stress, college students indicated how many cups of coffee they drink per day and their current stress level on a scale of 1 to 10. The table shows the survey results. Using a web-calculator, obtain the appropriate correlation coefficients.

Number of cups of coffee

Stress level

3

5

2

3

4

3

6

9

5

4

1

2

7

10

3

5

r= 0. 85190

R2= 0. 7257

Online calculator: http://easycalculation. com/statistics/r-squared. php

Reference

Soong, T.-T. (2004). Fundamentals of probability and statistics for engineers. Hoboken, NJ [u. a.: Wiley.