

# [Math problem](https://assignbuster.com/math-problem/)

[Science](https://assignbuster.com/essay-subjects/science/), [Mathematics](https://assignbuster.com/essay-subjects/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.