

PathMD™: Board Review Letter

Author: Philip Ferguson, M.D.

Statistics - Part 1

Volume 1, Number 19

1. Of the series of numbers on the website under question #1, calculate the mode, median, and mean, respectively.
 - A. 3,3,4.33
 - B. 4,5,4.33
 - C. 3,4,4.33
 - D. 5,4,4.33
 - E. 4,4,4.33
2. A series of data for a new clinical lab test has a Gaussian distribution. What percent of the data will be more than 3 standard deviations above the mean?
 - A. 4.5%
 - B. 2.25%
 - C. 0.3%
 - D. 0.15%
 - E. None of the above
3. A new instrument is installed for CBCs, and a correlation test is performed. The reference method is plotted on the X-axis and the new method on the Y-axis for multiple samples tested. Linear regression analysis is performed ($y=mx + b$). Which of the following represents the correlation coefficient, r.
 - A. Y-intercept (b)
 - B. Line slope (m)
 - C. Calculation of how well the points fit the line
 - D. None of the above
4. Which of the following correlation coefficients (r) represents the minimal number you would like to see when validating a new test?
 - A. 0.3
 - B. 0.9
 - C. 0.97
 - D. 0.99
 - E. None of the above
5. Of the following answers, which is the best tool to detect bias between two different methods?
 - A. Gaussian distributions
 - B. T-test
 - C. F-test
 - D. Linear regression analysis
 - E. Bland-Altman plot

PathMD™: Board Review Letter

Author: Philip Ferguson, M.D.

Statistics - Part 1

Volume 1, Number 19

6. For a test with a Gaussian distribution, what is the minimum number of representative samples needed to determine a reference range?
 - A. 20
 - B. 120
 - C. 180
 - D. 200
 - E. As many as possible

7. For a test without a Gaussian distribution, what is the minimal number of representative samples needed to establish a reference range?
 - A. 20
 - B. 120
 - C. 180
 - D. 200
 - E. As many as possible

8. To validate a previously established reference range, what is the minimal number of healthy person samples needed?
 - A. 20
 - B. 120
 - C. 180
 - D. 200
 - E. As many as possible

9. If 20 tests were performed on a “healthy” individual, what is the likelihood all of the results will be within the reference range?
 - A. 95%
 - B. 60%
 - C. 46%
 - D. 36%
 - E. None of the above

10. The coefficient of variation best represents which of the following:
 - A. Accuracy
 - B. Precision
 - C. Bias
 - D. Efficiency
 - E. None of the above

Notes for question set:¹

¹ PathMD strives for the highest quality and accuracy. However, the *PathMD: Board Review Letter* is for review purposes and not meant for clinical decision making. It should not be used in place of review of primary reference texts and the current medical literature. If inaccuracies are identified, please notify us so that a correction may be published. (info@PathMD.com)