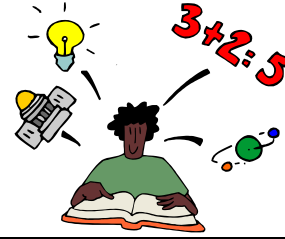


Data Distributions & Wrongful Conclusions



You have studied distributions and how to find their measures of center. From the following examples see if you can construct a data set of ten hypothetical exam scores that satisfy the property given. Also produce a “quickplot” histogram for each case. You may assume that all of the exam scores are integers between 0 and 100.

1. 90% of the scores are greater than the mean.
2. the mean is greater than twice the mode.
3. the mean is less than two thirds the median.
4. the mean equals the median, but the mode is greater than twice the mean.
5. the mean does not equal the median and none of the scores are between the median and the mean.

For each of these arguments, explain why the conclusion drawn is not valid. Also include a simple hypothetical example which illustrates that the conclusion drawn need not follow the information.

6. A real estate agent notes that the mean housing price for an area is \$325,780 and concludes that half of the houses in the area cost more than that.
7. A businesswoman calculates that the median cost of five business trips that she took in a month is \$600 and concludes that the total cost must have been \$3000.
8. A company executive concludes that an accountant must have made a mistake because she prepared a report stating that 90% of the company’s employees earn less than the mean salary.
9. A restaurant owner decides that more than half of her customers prefer chocolate ice cream because chocolate is the mode when customers are offered chocolate, vanilla, and strawberry.