

STUDENT'S SOLUTIONS MANUAL

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to accompany

ELEMENTARY STATISTICS USING EXCEL

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PREFACE

This manual contains the solutions to the odd-numbered exercises for each section of the textbook Elementary Statistics Using Excel, by Mario Triola, and the solutions for all of the end-of-chapter review and cumulative review exercises of that text. To aid in the comprehension of calculations, worked problems typically include intermediate steps of algebraic and/or Excel notation. When appropriate, additional hints and comments are included and prefaced by NOTE.

Many statistical problems are best solved using particular formats. Recognizing and following these patterns promote understanding and develop the capacity to apply the concepts to other problems. This manual identifies and employs such formats whenever practicable.

For best results, read the text carefully before attempting the exercises, and attempt the exercises before consulting the solutions. This manual has been prepared to provide a check and extra insights for exercises that have already been completed and to provide guidance for solving exercises that have already been attempted but have not been successfully completed.

I would like to thank Mario Triola for writing an excellent elementary statistics book and for inviting me to prepare this solutions manual.

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Chapter 1

Introduction to Statistics

1-2 The Nature of Data

1. Statistic, since 20.7 refers to the selected sample.
3. Parameter, since 30 refers to the entire population.
5. Discrete, since the number of absent students must be an integer.
7. Discrete, since the number owning answering machines must be an integer.
9. Ratio, since differences are meaningful and zero height has a natural meaning.
11. Interval, since differences are meaningful but ratios are not. Refer to exercise #19.
13. Interval, since differences are meaningful but ratios are not. Years are not data at the ratio level of measurement because the year zero has been arbitrarily assigned so that the year 0 does not indicate the absence of time. The year 1900, for example, does not represent twice as much time as 950 -- and the ratio would be different using the Chinese or Jewish numerical representations for those years. Since the time difference between 1900 and 1920 is the same as the time difference between 1920 and 1940, however, years are data at the interval level of measurement.
15. Ordinal, since the ratings give relative position in a hierarchy.
17. Ratio, since differences are meaningful and zero ounces has a natural meaning.
19. Temperature ratios are not meaningful because a temperature of 0° does not represent the absence of temperature in the same sense that \$0 represents the absence of money. The zero temperature in the example (whether Fahrenheit or Centigrade) was determined by a criterion other than "the absence of temperature."

1-3 Uses and Abuses of Statistics

1. Because the 186,000 respondents were self-selected and not randomly chosen, they are not necessarily representative of the general population and provide no usable information about the general population. In addition, the respondents were self-selected from a particular portion of the general population -- persons watching "Nightline" and able to spend the time and money to respond.
3.
 - a. $500 + (.05)(500) = 500 + 25 = 525$
 - b. $525 - (.05)(500) = 525 - 26.25 = 498.75$. No, because the 5% decrease is based on a larger amount than was the previous year's 5% increase.