Quiz 2, Use Graphs Name: _____ Grade:_____

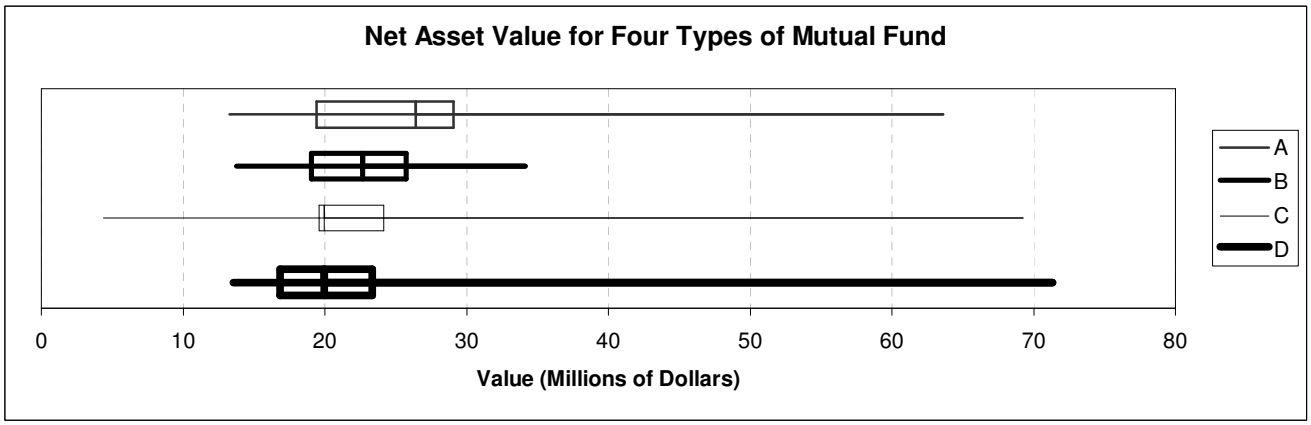
1. You have determined the assessed value of 2000 houses in the Washington, D.C. area, and wish to present your findings in a 10 category frequency distribution (with all class intervals equal, as usual). The houses in your sample run from an assessed value of $63,000 to an assessed value of $3,063,000, with a mean assessed value of $150,000 and a median assessed value of $105,000.

Which of the following would be the best choice for the width of class interval?

a) 31.5 b) 1500 c) 1533 d) 6,3,00 e) 300,000

(load the chart as a file for each of the following questions. Several questions such as 7 may need both charts)

Questions 2 to 17 are related to the following Box-and-Whisker Plots and Histograms.
Questions 2-10 refer to the box plot information shown below, which provides information on the NAV (net asset value) of samples of four different types of mutual funds, which we call A, B, C, D. For each question, determine the letter of the fund type (A, B, C, or D) which satisfies the condition stated. **If it is impossible to determine which fund type satisfies the stated condition, or if no fund type satisfies the condition, choose answer E.**



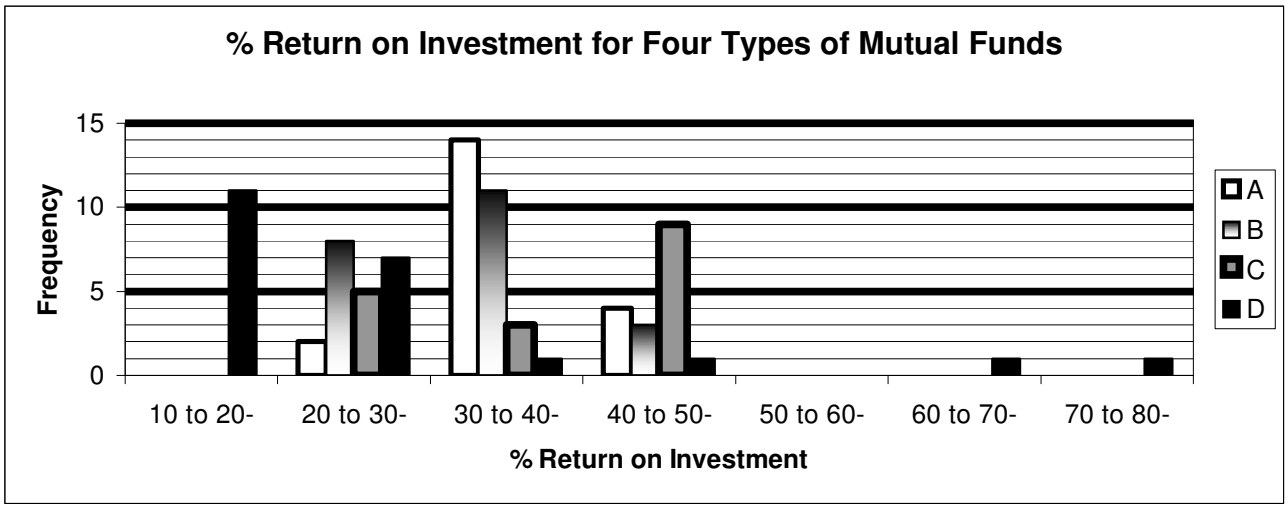
2. Funds in this investment type show the largest range of NAV of the four investment types.
3. The NAV of funds in this investment type shows the smallest interquartile range of the four types.
4. Funds in this investment type have the highest mean NAV (you may use the Histograms on the next page).
5. At least half of the mutual funds of this type have NAVs of 25million dollars or more.
6. The single fund with the highest NAV was of this type.
7. The data presented in the plots includes more funds of this investment type than any other. (**DO NOT PICK ANSWER E FOR QUESTION #7** and you may use the Histograms on the next page.)
8. At least 25% of all funds of this investment type have NAVs within $2 million of the median NAV for this investment type.
9. The midhinge of NAV values for funds in this investment type is larger than the midhinge of NAV values for funds in any other investment type.
10. The box plot of this investment type is consistent with a nearly symmetric distribution of NAV values for funds of this type.

Questions 11-15 deal with the multibar histogram shown on the next page. This histogram, like the box plots above, record information about four samples taken of four different types of mutual fund investments. This time, the information presented is the percent return on investments for the funds—that is, by what percent did the worth of an investment in that fund grown in the last year?

Questions 11-13 follow the same format as the questions above. For each question, determine the letter of the fund type (A, B, C, or D) which satisfies the condition stated. **If it is impossible to determine which fund satisfies the stated condition, or if no fund satisfies the condition, choose answer E.**
11. A fund of this type showed the highest % return on investment of any fund considered.
12. Funds of this type showed the highest standard deviation in % return on investment. **(Do not choose E for this question.)**
13. The mean percentage return on investment for funds of this type is less than 31%. **(Do not choose E for this question.)**

Questions 14-17 continue to reference the multiple bar histogram above.

14. The total number of funds of type A that were included in the survey is
    a) 14 b) 20 c) 22 d) between 30 and 40 e) impossible to determine from the histogram



For problems 15 through 17 only, confine your attention to the histogram for investment type D.

15. Note that the height of the first bar in the histogram of D corresponds to a value of "11" on the vertical axis. Now suppose that I wanted to create the *relative frequency histogram* for investment type D. In this new histogram, the first bar's height would no longer be represented as "11". What value *would* be used to indicate the first bar's height?

    a) 0.11 b) 0.22 c) 0.4 d) 0.5 e) 0.6363

16. Suppose that you were going to create the ogive for investment type D, based on relative frequency. Which value is closest to the y-value (height) that would correspond to x-value of 60 in this graph?

    a) 0 b) 0.05 c) 0.10 d) 0.90 0.95

17. Suppose I played "connect the dots" on the **original histogram of D**, above, in this way. I begin at the origin, then draw a straight line to the top of the first black bar, then on to the top of the second black bar, and so on. In the range "50 to 60-", I touch the x-axis, since there is no black bar, then I continue on as before, touching the top of the next black bar, then the last one, and finally drawing a final line segment to take me back down to the x-axis. Doing so would give me a decent approximation of which of the following charts?

    a) the relative frequency histogram for D
    b) the frequency polygon for D.
    c) the relative frequency polygon for D.
    d) the time-series plot for D.
    e) the ogive for D.

(This quiz is from previous work by Prof. Scott Stevens with minor modifications)