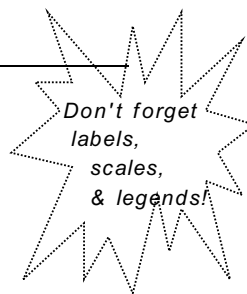


Math 310 Fall 2007 Test #1 Statistics & Probability NAME

SHOW WORK as if making a solutions guide for students. Use extra paper if necessary.



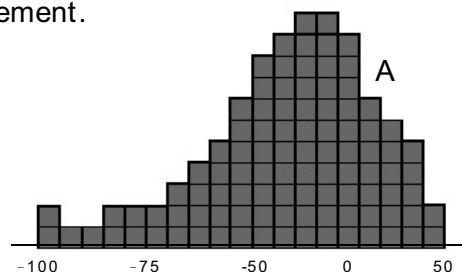
#1-3 The ages, in years, of ten members of the IHHA are given below.

75 96 96 93 84 54 51 75 69 24

- () 1. Classify the data in a stem-and-leaf diagram so there are at least five classes.
- () 2. Present a histogram using classes which correspond to those in problem (1).
- () 3. Draw a box plot for the data of problem #1; use the extra space for your work.
- () 4. Choose (circle the letter of) the BEST completion of each statement.

ONE: For the data illustrated at right (A), it appears:

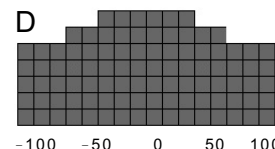
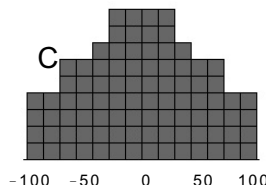
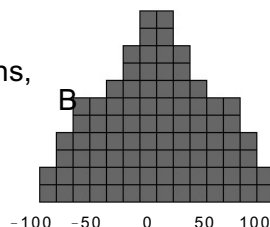
- A the mean and median are the same.
- B there is no median, but there is a mean.
- C the median is greater than the mean.
- D the mean is greater than the median.
- E there is insufficient information to draw any conclusion about the relative positions of the mean and median.



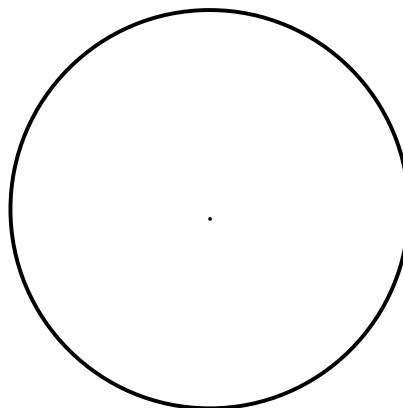
TWO:

Of these three data distributions, B & C & D, the one with the greatest standard deviation is:

- B D
- C E None, they are all the same



- () 5. Showing ALL your work, construct a pie chart illustrating the distribution of school expenditures. In the ALUFSD Unified School District, the following yearly expenditures are made for each student:
 Teaching staff salary & benefits: \$2700
 School plant maintenance: \$1800
 Insurance & Administration: \$3600



- () 6. Showing your work, for the quiz scores in the frequency table at right:
 a. calculate the **mean**.
 b. calculate the **standard deviation**.

Quiz score	Number of students
3	1
7	1
10	3

- () 7. The 25 students in Miss Horne's 4th-grade averaged 60 on the state reading test; the remaining 15 4th-graders, in Mr. King's class, averaged 80. What is the mean for all the fourth graders?
- () 8. (Bonus) Suppose Frank has earned 85, 92, and 86 on three tests, and he needs a 90% average for an A. What score must he earn on the fourth test to reach the "A" level?

PROBABILITY:

- () 1. A jar contains four marbles: three red, one blue. Two marbles are taken from the jar.
- What is the probability the marbles drawn are both blue?
 - What is the probability the marbles drawn are both red?
 - What is the probability the two different-color marbles are obtained?
- () 2. You roll a pair of fair dice, one green, the second one red.
 Let "A" be the event the green die turns up 6 dots.
 Let "B" be the event the red die turns up 3 dots.
 Let "C" be the event the red die # is less than the green die #.
- $P(A) =$ $P(B) =$ $P(C) =$
 - $P(A \text{ and } B) =$ c. $P(A \text{ or } B) =$
 - Are A & B *independent events*?
 Are A & C *independent events*?
 Are A & C *mutually exclusive events*?
- () 3a. Out of the last 300 reservations made at a certain restaurant, only 282 showed up. What is the probability a reservation made for this Friday night at 7:30 will be honored?
- 3b. A fair coin has been tossed twice; heads have turned up both times. What is the probability the next toss of the coin will turn up tails?
- 3c. Three marbles will be drawn from a jar containing six marbles, 4 black and 2 white. What is the probability that the second marble taken out will be white?
- () 4. Find the probability of obtaining *exactly 2 heads* in 3 tosses of a fair coin. Show your work!
- () 5a. The probability of rain tomorrow is 10%. What are the odds against rain tomorrow?
- 5b. In a game in which the *odds against you* are **3:1**, what is the probability of winning?
- (3) 6. A swimming class consists of 6 boys and 14 girls.
 Of the boys, 4 have won a blue ribbon. Of the girls, 6 have won a blue ribbon.
 Given that a blue-ribbon member of this class is selected, what is the probability she is a girl?