

ICM Statistics Review

1) A telephone poll of 181 randomly selected American mothers with children under 18 in the household was taken by Time/CNN May 21-22, 2003. The data below are from the poll. Use this information to solve the following:

population

- A. Describe the population and the sample of this poll.
- B. For each person polled, what variable is measured?

the 181 mothers selected for the poll

Do you think the war with Iraq has made terrorist attacks in the U.S. more likely or less likely, or hasn't made any difference?

belief about the likelihood of attacks

More Likely	Less Likely	No Difference
47%	19%	31%

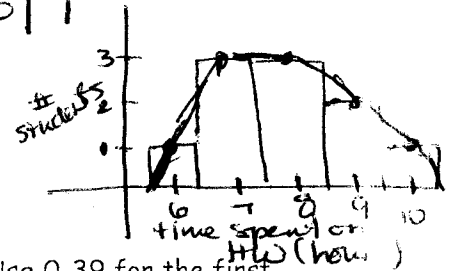
2) The government of a large city wants to know if its citizens will support a three-year tax increase to provide additional support to the city's community college system. The government decides to conduct a survey of the city's residents before placing a tax increase initiative on the ballot. Which one of the following is most appropriate for obtaining a sample of the city's residents?

- A. Survey a random sample of persons within each geographic region of the city.
- B. Survey a random sample of community college professors living in the city.
- C. Survey every tenth person who walks into the city's government center on two randomly selected days of the week.
- D. Survey a random sample of persons within each geographic region of the state in which the city is located.

3) A random sample of ten college students is selected and each student is asked how much time he or she spent on homework during the previous weekend. The following times, in hours, are obtained: 8, 10, 9, 7, 9, 8, 7, 6, 8, 7.

- A. Construct a frequency distribution for the data.
- B. Construct a histogram for the data.

time	# students
6	1
7	3
8	3
9	2
10	1



4) The 50 grades on a physiology test are shown.

44	24	54	81	18	34	39	63	67	60
72	36	91	47	75	57	74	87	49	86
59	14	26	41	90	13	29	13	31	68
63	35	29	70	22	95	17	50	42	27
73	11	42	31	69	56	40	31	45	51

- A. Construct a grouped frequency distribution for the data. Use 0-39 for the first class, 40-49 for the second class, and make each subsequent class width the same as the second class.
- B. Construct a stem-and-leaf plot for the data.

grade	frequency	stem	leaves
0-39	19	1	13 4 7 8
40-49	8	2	2 4 7 9 9
50-59	6	3	1 1 4 5 6 9
60-69	6	4	0 1 2 4 5 7 9
70-79	5	5	0 1 7 7 9
80-89	3	6	0 3 7 8 9
90-99	3	7	0 2 7 5
		8	1 0
		9	0 1 3 1

- 5) Find the mean for each group of data items.
 - A. 84, 90, 95, 89, 98 **91.2**
 - B. 33, 27, 9, 10, 6, 7, 11, 23, 27 **17**

- 6) Find the median for each group of data items.
 - A. 33, 27, 9, 10, 6, 7, 11, 23, 27 **11**
 - B. 28, 16, 22, 28, 3 **28**

- 16) A set of data items is normally distributed with a mean of 50 and a standard deviation of 5. Convert each data item to a z-score.
- A. 50 **0**
 - B. 60 **2**
 - C. 58 **1.6**
 - D. 35 **-1.3**
 - E. 44 **1.2**

- 17) The number of miles that a particular brand of car tires lasts is normally distributed with a mean of 32,000 miles and a standard deviation of 4000 miles. Find the data item in this distribution that corresponds to the given z-score.
- A. $z = 1.5$ **38000**
 - B. $z = 2.25$ **41000**
 - C. $z = -2.5$ **22000**

- 18) The mean cholesterol level for all men in the United States is 200 and the standard deviation is 15. Find the percentage of US men whose cholesterol level
- A. is less than 221 **91.92%**
 - B. is greater than 173 **96.41%**
 - C. is between 173 and 221 **88.33%**
 - D. is between 164 and 182 **10.69%**

- 19) Use the percentiles for the weights of adult men over 40 to find the percentage of men over 40 who weigh
- | Weight | Percentile |
|--------|------------|
| 235 | 86 |
| 227 | 75 |
| 180 | 50 |
| 173 | 25 |
- A. less than 227 pounds **75%**
 - B. more than 235 pounds **14%**
 - C. between 227 and 235 pounds **11%**

- 20) Use the dot plot to the right to answer the questions:
-
- A. How many families were surveyed? **28**
 - B. What is the mean? **2.19**
 - C. What is the median? **3**
 - D. What is the mode? **3**
 - E. What is the midrange? **3**

Construct a box plot (modified if needed) for Tucker's quiz grades:
63, 88, 89, 89, 95, 98, 99, 99, 100, 100

- 22) The final exam scores in a statistics class are normally distributed with a mean of 63 and a standard deviation of 5. Find the probability that a randomly selected student scored
- A. higher than 65 **34%**
 - B. less than 85 **99.9%**
 - C. between 70 and 76 **0.7%**
 - D. in the 90th percentile **69.4%**

Answer is to find the score that goes with the 10th percentile

- 7) Find the mode for each group of data items.
- A. 33, 27, 9, 10, 6, 7, 11, 23, 27 **27**
 - B. 582, 585, 583, 585, 587, 587, 589 **585 & 587**
- 8) Find the midrange for each group of data items.
- A. 84, 90, 95, 88, 98 **91**
 - B. 33, 27, 9, 10, 6, 7, 11, 23, 27 **19.5**

- 9) Find the range for each group of data items.
- A. 28, 34, 16, 22, 28 **18**
 - B. 312, 783, 219, 312, 426, 219 **564**

- 10) Find the mean, median, mode and midrange for the data items in the frequency distribution:
- | Score (x) | Frequency (f) |
|-----------|---------------|
| 1 | 2 |
| 2 | 4 |
| 3 | 3 |
| 4 | 1 |
- mean = 2.3**
med = 2
mode = 2
midrange = 2.5

- 11) Use the data items 36, 26, 24, 90, and 74 to find
- A. the mean **50**
 - B. the deviation from the mean for each data item **-14, -24, -24, 40, 24**
 - C. the sum of the deviations in part B **0**
- 12) Find the population standard deviation for each group of data items.
- A. 3, 3, 5, 8, 10, 13 **4.05**
 - B. 20, 27, 23, 26, 28, 32, 33, 35 **5.13**

- 13) You and your friends have just measured the heights of the first 5 dogs walking into the new Petco store. The heights at the shoulders are: 600 mm, 470 mm, 170 mm, 430 mm, 300 mm. Find the mean and standard deviation.
- 394** (64.71)
- 14) The scores on a test are normally distributed with a mean of 70 and a standard deviation of 8. Find the score that is
- A. 2 standard deviations above the mean **86**
 - B. 3.5 standard deviations above the mean **98**
 - C. 1.25 standard deviations below the mean **60**

15) The ages of people living in a retirement community are normally distributed with a mean age of 68 years and a standard deviation of 4 years. Use the 68-95-99.7 Rule to find the percentage of people in the community whose ages

- A. are between 64 and 72. **68%**
- B. are between 60 and 76. **95%**
- C. are between 68 and 72. **34%**
- D. are between 56 and 80. **91.7%**
- E. exceed 72. **10%**
- F. are less than 72. **10%**
- G. exceed 76. **2.5%**

Answer is to find the score that goes with the 10th percentile