Exam #1 practice problems

1. The following is the estimated number of male prison inmates in various age groupings in the United States, in 1984. (1) Calculate the age corresponding to the 80th percentile. (2) What percentile would a 27 year-old male fall on?

Age class	Estimated number (f)	%	c%
65-74	1,185	.35	100
55-64	6,786	1.95	99.65
45-54	18,097	5.20	97.7
35-44	67,866	19.5	92.5
25-34	158,355	45.5	73
15-24	95,687	27.5	27.5
	347,976	100	

2. There are 6 things wrong with the following table, name 4 of them. Circle the errors and explain below why it is wrong. The table concerns data from the U.S Department of Health and Human Services.

Calories	f	%	cp	c%
5000-	5	.005	1065	100
4500-4999	4	.004	1065	99.5
4000-4499	6	.006	1061	99.1
3000-3999	40	.037	1055	98.5
2000-2999	258	.241	1015	94.8
1000-2000	564	.527	757	70.7
0 - 999	193	.180	193	18.0
	1070	1.00		

3. For the following sample of scores, calculate the range, sum of squares, variance, and the standard deviation. If we added 2 points to each of the scores, what would happen to the standard deviation. Explain.

sample scores: 2, 4, 5, 5, 8, 8, 10

4. For the following distribution of scores, calculate the mean, median, and mode.

Score	f
9	2
8	2
7	3
6	0
5	4
4	3
2	4
1	1

5. Explain the difference between simple random sampling, stratified random sampling, and cluster sampling.

6. A job applicant is told that she must score at least 2 standard deviations above the mean in a placement test in order to be hired. The individual scores 560 on a test where the mean is 400 and the standard deviation is 60. What z score corresponds to a raw score of 560 on this test?

7. John was told by his instructor that his z score for a recent test was -1.5 and Cindy was told her z score was +2.5. What test scores did John and Cindy get if the class mean was 60 with a standard deviation of 8?

8. Explain why the median is superior to the mean when we have severely skewed distributions?

9. A journal reviewer tells you that he cannot accept your manuscript for publication because your operational definition has poor construct validity. Explain what he means by that.