Computations You Should be Able to Perform.

1. A psychology professor gave a test and got the following scores.

	A	B	C	D	E	F	G	H	I	J
	12	12	7	10	9	12	13	8	9	8
z-score										

a. What is the mean for this distribution? 10

b. What is the standard deviation for this distribution? 2

c. Compute the z-scores for each person.

d. What is the mean of the set of z-scores? 0

e. What is the standard deviation of the set of z-scores? 1.00

2. Answer each of the following:

a. What is the value of a Z-score that occurs 5% of the time or less? -1.64

b. What is the value of a Z-score that occurs 5% of the time or more? +1.64

c. What is the value of a Z-score that occurs 1% of the time or less? -2.33

d. What is the value of a Z-score that occurs 1% of the time or more? +2.33

e. What is the probability that a person will get a score that fall at or above z = 2.33?

.01

3. Compute a raw score given a z score. Use the scores for item 1 for the following questions.

a. What is the raw score for a z score of 0.00? 10

b. What is the percentile for a z score of 0.00? P_{50}

c. What is the raw score for a z score of + 1.51? 13.02

d. The raw score for a z score of -1.96 is? 6.06

4. Determine the percent of scores that fall above or below a given z-score.

Given a population with μ = 80.00 and σ of 7.5, answer the following questions.

What percentage of people score less than a z score of -1.00?

15.87

What percentage of people score 78 or less?

39.36

What percentage of people score 86 or less? 71.19

What percentage of people score more than 97.47? 1%

What percentage of people score at or above z = +1.96 or at or below z = -1.96.

5%

What percentile is a score of 100? 99.62

5. Convert a number to a derived score.

Given a population with μ = 23.00 and σ of 2.8, answer the following questions.

Convert a score of 27 to a t-score with a mean of 50 and standard deviation of 10.

Step 1. Z = 1.429

Step 2. Score = 64.29

Convert a score of 21 to a t-score with a mean of 50 and standard deviation of 10.

Step 1. Z = - .7143

Step 2 Score = 42.86

Concepts and Interpretation

1. A three students all took the same three classes. They were discussing their overall raw scores on the final exams in these classes. Their scores for the three classes are summarized below.

	Psychology Final	Math Final	History Final
CHRIS	70	92	47
LYNN	57	120	67
PAT	47	112	70
Class Mean	50	100	63
Class Standard Deviation	7	20	12

Hint: To do this you have to calculate the z-scores for each of the grades. Think Gnome Naming Test.

Who got the best overall score? On which exam?

Who got the worst overall score? On which exam?

Who got a score that was closest to the class average? On which exam?

2. You will have been asked by the International High Jumper's Association to design a hurdle that only 5% of the population can jump over. You know that the average jumping height for the population is 18 inches; the standard deviation is 2.5 inches. How high should you design the hurdle?

Hint: To do this problem you have to

1. Determine the z-score above which 5% of the scores fall.

2. What is the raw score that is represented by this z-score?