TRANSFORMED SCORES - PERCENTILE RANKS

OBJECTIVE:

To provide first hand experience with transformed scores thereby increasing understanding.

Test results, especially standardized tests, are typically reported in transformed score units. For example, an examinee may get 50 correct answers on a standardized intelligence test. But the number "50" has no meaning. We can transform the raw score of 50 to an IQ score and a percentile score, two scales with known properties. For example, a raw score of 50 may convert to transformed scores of 115 IQ and the 84th percentile. Both of these latter values have meaning to most people in our society.

GENERAL INFORMATION:

In this section, we provide a brief overview of transformed scores *in general* as well as some information on specific transformed scores referred to as percentiles. This exercise will focus only on percentile scores.

A percentile may be defined as a raw score that has been converted into an expression of the percentage of a distribution that falls below a particular raw score. Percentile scores are widely used in test manuals as well as other literature on commercially published standardized tests. Therefore, students of psychological testing need to understand how they are used.

Raw scores can be converted to percentiles by using the following formula:

$$PR = \frac{nL}{N}(100)$$

where: PR = percentile rank,
nL = the number of scores lower than the score being converted to a percentile, and
N = the total number of scores.

To practice with this formula, look back at the distribution of test scores that appear in Table 1 and focus on Diane's raw score of 83. The conversion of that raw score to a percentile would proceed as follows:

Step 1

Find the value of nL by counting the number of scores that were lower than Diane's. (Note: It is easier to use Table 2 where the scores are in order.) In this case, nL = 16

Step 2

Determine the value of N. In this example, N is equal to 25 since there were a total of 25 scores.

Step 3

Solve for PR as follows: $$PR = \frac{16}{25}(100) = 64$$

We can now say that Diane's score is at the 64th percentile. This means that 64% of the distribution fell below Diane's score and 36% of the distribution fell above Diane's score. More useful information has been communicated to others by transforming her raw score of 83, which had no meaning to those unknowledgeable about the distribution, to a percentile rank.

YOUR HOMEWORK:

The exercise in this section will give you practice in converting raw scores to percentiles.

Name _____ Section _____

CALCULATING PERCENTILE RANKS - WORKSHEET

1) Using data from Table 1 and Table 2 convert the raw scores of the students listed below from the distribution of test scores to percentiles.

SHOW ALL WORK HERE

Katy _____

Joe _____

Ali _____

Roberta _____

Table 1

Student	**Score**
Sandee	85
Joe	89
Bob	63
Ray	67
Jodi	96
Mary	52
Wes	88
Dick	97
Tim	74
Diane	83
Jackie	77
Pam	93
Craig	60
Kathy	55
Bill	74
Dave	70
Ali	75
Roberta	55
Katy	94
Linda	68
Frank	60
John	84
Marilyn	57
Jack	66
Terri	74

Table 2

X	f
97	1
96	1
94	1
93	1
89	1
88	1
85	1
84	1
83	1
77	1
75	1
74	3
70	1
68	1
67	1
66	1
63	1
60	2
57	1
55	2
52	1
	$\sum f = N = 25$