(more/less) reliable basis for generalizing than large samples.

27. Averages based on a large number of cases are _____ (more/less) reliable than those based on a few cases.

28. Averages are more reliable when they are based on scores with _____ (high/low) variability.

29. When people perceive little variability in individual instances, they are _____ (more/less) likely to generalize from them.

30. Tests of statistical significance are used to estimate whether observed differences are reliable, that is, to make sure they are not simply the result of chance variation.

FOCUS ON PSYCHOLOGY: Could a Monkey Have Written This?

It has been said that given enough time, a monkey randomly striking the keys of a typewriter could theoretically turn out the great American novel. What is the actual probability of this occurring?

In this study guide there are approximately 200,000 letters, numbers, and spaces. The keyboard of the microcomputer that I used to type it has 63 keys on it. Therefore, at any given point in time, the monkey would have a 1 in 63 chance of striking the correct key. Sounds plausible, you say? To complete the entire study guide, our diligent ape would have to strike the correct key 200,000 times in succession. The probability of this occurring is computed as $1/63 = 0.016$ raised to the power of 200,000. To develop a feeling for how remote this probability is, 0.016 raised to the power of 2 is equal to 0.000256; 0.016 raised to the 20th power is equal to .00000000000000000000000000000000000000 00121. Raised to the power of 200,000, the probability is so small that the decimal point is followed by more zeros than there are characters in this entire book.

Source: Suggested by Grasha, A. F. (1963). *Practical Applications of Psychology* (2nd ed.). Boston: Little, Brown.

Progress Test 1

Multiple-Choice Questions

Circle your answers to the following questions and check them with the answers on page 428. If your answer is incorrect, read the explanation for why it is incorrect and then consult the appropriate pages of the text (in parentheses following the correct answer). U the page margins if you need extra space for y computations.

1. Percentile rank is defined as:
   a. the difference between the highest and low scores in a distribution.
   b. a statistical statement of the likelihood that obtained result occurred by chance.
   c. the square root of the average of the squar deviations in a distribution.
   d. the percentage of the scores in a distributi that a given score exceeds.

2. What is the mean of the following distribution scores: 2, 3, 7, 6, 1, 4, 9, 5, 8, 2?
   a. 5 c. 4.7
   b. 4 d. 3.7

3. What is the median of the following distribution scores: 1, 3, 7, 7, 2, 8, 4?
   a. 1 c. 3
   b. 2 d. 4

4. What is the mode of the following distribution: 2, 1, 1, 3, 7, 6, 2, 0, 2?
   a. 1 c. 3
   b. 2 d. 7

5. Compute the range of the following distribution: 9 14, 2, 8, 1, 6, 8, 9, 1, 3.
   a. 10 c. 8
   b. 9 d. 13

6. Squaring the difference between each score in distribution and the mean is the first step in computing the:
   a. median. c. range
   b. mode. d. standard deviation

7. If two sets of scores are negatively correlated, means that:
   a. as one set of scores increases the other de creases.
   b. as one set of scores increases the other in creases.
   c. there is only a weak relationship between the sets of scores.
   d. there is no relationship at all between the sets of scores.

8. Regression toward the mean is the
   a. tendency for unusual scores to fall back toward a distribution's average.
   b. basis for all tests of statistical significance
   c. reason the range is a more accurate measure of variation than the standard deviation
   d. reason the standard deviation is a more accurate measure of variation than the range

9. In a normal distribution, what percentage of scores