

7. VII · Historical perspectives and psychometric interpretation

Starter Quiz ·

GRE Subject Test · GRE Psychology

Name: _____ Score: _____

1. In a fictional population of 1,000, the condition prevalence is 5%, sensitivity is 80% and the false-positive rate is 5%. Using expected counts, what proportion of positive results are true positives (three decimal places)?

2. On an approximately normal reference scale with mean 100 and SD 15, a score of 115 is at roughly which percentile?

3. Which score is criterion-referenced?
 - ☐ ranking in the top decile
 - ☐ scoring above 84% of peers
 - ☐ an IQ of 115
 - ☐ passing a licence exam by meeting each standard
4. High reliability alone is insufficient evidence for every proposed interpretation or use of a score.
 - ☐ True ☐ False
5. Wundt's 1879 laboratory and Titchener's structuralist programme are interchangeable historical labels.
 - ☐ True ☐ False
6. A study asks how rewards following an action change its future frequency. Which emphasis is closest?
 - ☐ Structural analysis of conscious qualities
 - ☐ A norm-referenced score comparison
 - ☐ Operant behavioural analysis
 - ☐ Psychoanalytic interpretation of unconscious conflict
7. A mean of 100 and SD of 15, without a distribution or percentile table, prove that 115 is at the 84th percentile.
 - ☐ True ☐ False
8. Of 900 people independently known not to have a condition, 810 are not flagged. What is specificity as a percentage?

9. A fictional test population contains 100 cases and 900 non-cases. Sensitivity is 80% and specificity is 90%. Using these counts, what is PPV as a proportion, to three decimal places?

10. Using the classical summary SEM formula with score SD 15 and relevant reliability 0.84, what is SEM in score points?

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Answers ·

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1. **0.457**

Expected true positives = $0.8 \times 50 = 40$; expected false positives = $0.05 \times 950 = 47.5$. Fractional expected counts describe a model, not half a person observed. $PPV = 40/(40 + 47.5) \approx 0.457$.

2. **84**

$z = (115 - 100)/15 = 1$. With the stated normal approximation, about 84% of the reference distribution lies below that score. Mean and SD alone would not determine a percentile.

3. **passing a licence exam by meeting each standard**

Meeting a defined performance standard is a criterion comparison. Rank and percentile statements compare with people in a specified group.

4. **True**

Consistency or precision under specified replications does not establish that an intended interpretation, decision or fairness claim is supported.

5. **False**

Distinguish the laboratory milestone from the later school and its particular aims.

6. **Operant behavioural analysis**

The question concerns behaviour and its consequences. Classify the research question rather than relying only on a researcher's name.

7. **False**

The mean and SD locate a score in standard-deviation units. The percentile additionally needs the distribution or appropriate empirical norms.

8. **90**

Specificity = true negatives/all non-cases = $810/900 = 0.90$, or 90%.

9. **0.471**

True positives = 80; false positives = $0.10 \times 900 = 90$. $PPV = 80/(80 + 90) \approx 0.471$. Sensitivity uses a different denominator.

10. **6**

$SEM = 15 \times \sqrt{1 - 0.84} = 15 \times 0.4 = 6$ score points. This is not an interval width or a bound on every error.