AP Statistics
Vocabulary Quiz: Inference

Name: _____
Date: _____ Pd: _____

Do teenagers get enough sleep? Doctors recommend that teenagers get an average of nine hours of sleep each night. Suppose a random sample of teenagers produced the following results:

	Get enough sleep	Do not get enough sleep
Seniors	8	34
Underclassmen	14	33

$\bar{x}_S = 6.8095$ (hours/night) $\quad \bar{x}_U = 7.2766$ (hours/night)

$s_S = 1.5334$ (hours/night) $\quad s_U = 1.4993$ (hours/night)

For problems 1-11, choose the most appropriate response to complete the statement.

1. One- and two-sample z-procedures for sample proportions are used with _____ data.
   a. discrete
   b. continuous
   c. categorical
   d. quantitative
   e. subspace

2. One- and two-sample t-procedures are used with _____ data.
   a. discrete
   b. continuous
   c. categorical
   d. quantitative
   e. transporter

3. A statistic is a calculation based on _____.
   a. population data
   b. sample data
   c. a normal distribution
   d. a t-distribution
   e. a holodeck simulation

4. A _____ is a measure that describes a population.
   a. parameter
   b. statistic
   c. normal distribution
   d. t-distribution
   e. tribble

5. _____ determines the boundary for rejecting the null hypothesis.
   a. The test statistic
   b. Alpha
   c. Beta
   d. The power
   e. The neutral zone

6. In a two-sample test for means, samples must _____.
    a. contain at least ten subjects
    b. be independently chosen
    c. be larger than ten percent of the population
    d. be pooled
    e. contain a betazoid

7. Finding _____ involves subtracting the mean of the sampling model and dividing by its standard deviation (or standard error).
    a. alpha
    b. beta
    c. the power
    d. the test statistic
    e. a cloaking device

8. When conducting a hypothesis test, the standardized value _____.
    a. lies above the upper critical value
    b. lies below the lower critical value
    c. is the margin of error
    d. is the test statistic
    e. is powered by dilithium crystals

9. The probability that our sample produces a statistic at least as extreme as the one we observed is _____.
    a. the p-value
    b. the margin of error
    c. the critical value
    d. the test statistic
    e. cause for red alert

10. When we make a generalization about a population based on sample data, we _____.
    a. conduct an experiment
    b. perform inference
    c. interpolate
    d. extrapolate
    e. set phasers to stun

11. A p-value is used to show that _____ is too unlikely to have occurred by chance.
    a. an observed value
    b. the margin of error
    c. the alternative hypothesis
    d. the null hypothesis
    e. a warp core breach

For problems 12-20, choose which procedure you would use to answer the question. (*Think*: Am I testing proportions or means? Is it a one- or two-sample problem? Should I use a hypothesis test or a confidence interval?) You may repeat answers, but choose only one answer for each question (although more than one letter may be appropriate).

f. One-sample z-test for proportions
g. Two-sample z-test for proportions
h. One-sample t-test for means
i. Two-sample t-test for means
j. Paired t-test
k. One-sample z-interval for proportions
l. Two-sample z-interval for proportions
m. One-sample t-interval for means
n. Two-sample t-interval for means
o. Paired t-interval

12. Do teenagers get enough sleep? _____

13. Do underclassmen get more sleep than seniors? _____

14. Do seniors get enough sleep? _____

15. About how many hours of sleep do seniors get per night? _____

16. About how many more hours of sleep per night do underclassmen get than seniors? _____

17. What is the difference in the percent of seniors who get enough sleep and the percent of underclassmen who get enough sleep? _____

18. What percent of seniors get enough sleep? _____

19. Are underclassmen more likely to get enough sleep than seniors? _____

20. Do teenagers get fewer than 8 hours of sleep per night? _____

Use the information given in the following conclusions to answer problems 21-25.

If there were no difference between the average number of hours slept per night by seniors and underclassmen, we would expect a sample difference at least as extreme as 0.467 hours in about 8 out of every 100 samples due to chance variation. This is not strong enough evidence to conclude that seniors get less sleep than underclassmen.

21. State the p-value. _____

22. State the null hypothesis. _____

23. State the alternative hypothesis. _____

We are 95% confident that seniors, on average, sleep between about of 1.1 hours less than and 0.2 hours more than underclassmen per night, because 95% of all samples of sizes 42 and 47 will produce an observed difference within about 0.65 hours of the true difference.

24. Find the margin of error. _____

25. State the confidence interval. _____