4.1 review

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem.

1) The _____ hypothesis contains the "=" sign. 1) _____
A) Alternative B) Explanatory C) Conditional D) Null

2) A hypothesis test is a "two-tailed" if the alternative hypothesis contains a _____ sign. 2) _____
A) > B) + C) < D) ≠

Express the null hypothesis.

3) Which could be the null hypothesis for the true proportion of fireflies unable to produce light? 3) _____
A) $H_0: p > 0.0012$
B) $H_0: p = 0.0012$
C) $H_0: p < 0.0012$
D) $H_0: p \approx 0.0012$
E) $H_0: p \neq 0.0012$

4) Which is the null hypothesis for testing that the average (μ) miles per gallon of a new SUV called the Aquarius is better than 25. 4) _____
A) $H_0: \mu = 50$
B) $H_0: \mu = 25$
C) $H_0: \mu \not\geq 25$
D) $H_0: \mu \neq 25$
E) none of these

Examine the given statement, then identify whether the statement is a null hypothesis, an alternative hypothesis or neither.

5) The mean income of workers who have majored in history is less than $25,000. 5) _____
A) Alternative hypothesis B) Neither C) Null hypothesis

6) The percentage of viewers tuned to FOX News is equal to 85%. 6) _____
A) Null hypothesis B) Neither C) Alternative hypothesis

Select the most appropriate answer.

7) Which of the following would be an appropriate null hypothesis? 7) _____
A) The population proportion is equal to 0.41.
B) The population proportion is not equal to 0.41.
C) The sample proportion is equal to 0.41.
D) The population proportion is less than 0.41.
E) The sample proportion is less than 0.41.

8) Which of the following would be an appropriate alternative hypothesis? 8) _____

A) The sample mean is greater than 3.4.
B) The population mean is equal to 3.4.
C) The population mean is greater than 3.4.
D) The sample mean is not equal to 3.4.
E) The sample mean is equal to 3.4.

Determine the null and alternative hypotheses.

9) An automobile manufacturer claims that its new sedan will average better than 25 miles per gallon in the city. Let μ represent the true average mileage of the new sedan. 9) _____

A) $H_0: \mu = 25$ $H_a: \mu \leq 25$
B) $H_0: \mu = 25$ $H_a: \mu \neq 25$
C) $H_0: \mu = 25$ $H_a: \mu > 25$
D) $H_0: \mu = 25$ $H_a: \mu < 25$
E) $H_0: \mu = 25$ $H_a: \mu \geq 25$

10) The mean starting salary for students who have majored in statistics is $55,000. 10) _____

A) None of these
B) $H_0 : \mu = 55{,}000$ $H_a : \mu \neq 55{,}000$
C) $H_0 : \mu = 55{,}000$ $H_a : \mu < 55{,}000$
D) $H_0 : \mu = 55{,}000$ $H_a : \mu > 55{,}000$
E) $H_0 : \mu = 55{,}000$ $H_a : \mu = 55{,}000$

11) Testing to see if there is evidence that the mean time spent studying per week for first-year students is less than upperclass students. 11) _____

Let group 1 be the first year students and let group 2 be the upperclass students..

A) $H_0: \mu 1 = \mu 2$ $H_a: \mu 1 < \mu 2$
B) $H_0: \mu 1 = \mu 2$ $H_a: \mu 1 > \mu 2$
C) $H_0: \mu 1 = \mu 2$ $H_a: \mu 1 \leq \mu 2$
D) $H_0: \mu 1 = \mu 2$ $H_a: \mu 1 \geq \mu 2$