

In-Video Quiz Questions for  
Unit 3: Part 3 – (3) HT (for the mean) examples

**(04:29) – slide 4, after “hence, the p-value, which is going to be the sum of the two tail areas here, will be approximately 0.”**

1. p-value of approximately 0 provides \_\_\_\_\_
- (a) strong evidence against the null hypothesis.
  - (b) weak evidence against the null hypothesis.
  - (c) strong evidence against the alternative hypothesis.
  - (d) weak evidence against the alternative hypothesis.
  - (e) no evidence against the null hypothesis.

**(05:01) – slide 5, after “Of a difference between the average IQ score of mothers of gifted children and the average IQ score for the population at large.”**

2. Based on the results of this hypothesis test, would you expect a confidence interval with an equivalent confidence level to contain the null value (100)?
- (a) Yes
  - (b) No

**(06:46) – slide 6, after “Because the distribution is symmetric, the upper tail area is also going to be point 0.0418 and therefore the total p value for this hypothesis test is simply going to be one of the tail areas times 2, which comes out to be point 0.836.”**

3. The test statistic for this hypothesis test is calculated to be 1.73. Then, what is the p-value? Choose the closest answer. (Hint: Draw a picture.)

- (a) 0.96
- (b) 0.04
- (c) 0.08
- (d) 0.73
- (e) 0.07

**(09:19) – slide 7, after “if in fact that cats truly slept 14 hours per day, on average.”**

4. Which of the following is false based on this p-value?

- (a) There is an 8.36% chance that the null hypothesis is true.
- (b) There is an 8.36% chance that the alternative hypothesis is true.
- (c) There is an 8.36% chance that the alternative hypothesis is true if in fact the null hypothesis is false.
- (d) There is an 8.36% chance that a random sample of 144 cats yields an average of 16 hours of sleep if in fact cats sleep 14 hours on average.
- (e) All of the above.

**Answers:**

1. a
2. b

*Explanation:* Remember, we rejected the null, so it shouldn't be in the interval.

3. c
4. e

*Explanation:* The p-value is a conditional probability:  $P(\text{observed or more extreme outcome} \mid H_0 \text{ true})$ .