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Homework 3: Introduction to

Course > Unit 2 Foundation of Inference > Hypothesis Testing

> 1. True or False

Currently enrolled in **Audit Track** (expires December 25, 2019) <u>Upgrade (\$300)</u>

1. True or False

(a)

1/2 points (graded)

Suppose that according to a fixed statistical model, a pair of hypotheses, and a test ψ_{α} , we observe a sample and compute the pvalue to be p=0.01. For each of the following groups of statements, select the one that is necessarily true. If there is none, select "None of the above."

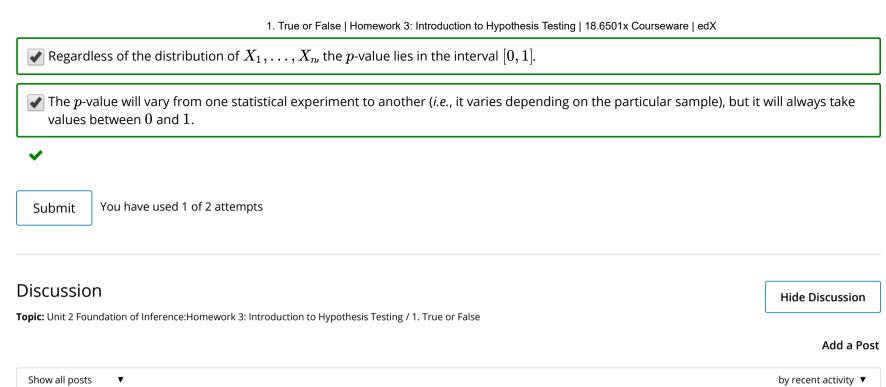
Which of the following is necessarily true?

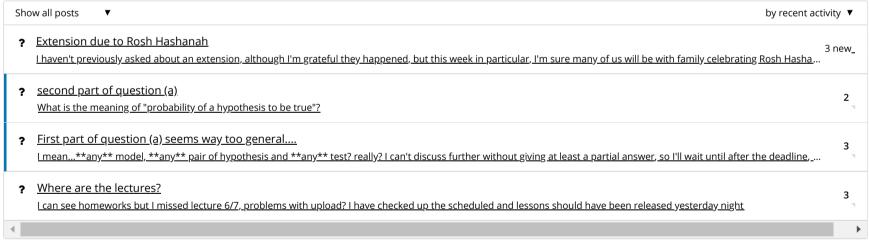
- \bigcirc Any test ψ_lpha that rejects H_0 for this observation will have a Type 1 error of at most 0.01.
- igcap Any test ψ_lpha that rejects H_0 for this observation will have a Type 2 error of at most 0.01.
- \bigcirc Any test ψ_lpha that does not reject H_0 for this observation will have a Type 1 error of at most 0.01.
- igcap Any test ψ_lpha that does not reject H_0 for this observation will have a Type 2 error of at most 0.01.
- None of the above.

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Which of the following is necessarily true? There is exactly a 0.99 chance for the null hypothesis to be true. There is exactly a 0.99 chance for the null hypothesis to be false. \bigcirc There is exactly a 0.01 chance for the alternative hypothesis to be true. There is exactly a 0.01 chance for the alternative hypothesis to be false. None of the above You have used 2 of 2 attempts Submit **★** Partially correct (1/2 points) (b) 1/1 point (graded) Consider a statistical experiment $X_1,\ldots,X_n\stackrel{iid}{\sim}P_{ heta^*}$ with an associated statistical model $(E,\{P_{ heta}\}_{ heta\in\Theta})$. You perform a hypothesis test on the true parameter θ^* via a statistical test ψ . Which of the following is true about the p-value associated to this statistical experiment? (Choose all that apply.) The set of all possible values that the p-value can take varies depending on the distribution P_{θ} . For example, one distribution may have pvalues in $(0, \infty)$, while another may be constrained to a discrete set like $\mathbb{Z}_{\geq 0}$.

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