Phil 6014. Assignment #2: Due by March 17*

*Let me know if you need a little extra time

Do #1 and choose between #2 and #3. Submit the questions along with your answers.
In answering #2 or #3, do not assume the reader knows the answer but, rather, is looking to *you* for illuminating clarification of key terms. Spend time explaining them, even if it feels a little redundant. This is not an essay, just a clearly written answer to a question stated at the start. If you're not sure about anything, please ask me.

1. Let $X_1, X_2, \ldots X_{225}$ be a random sample, n= 225, each from a Normal distribution with mean μ equal to 100 and σ equal to 15. Suppose the assumptions of the model hold and you are testing:

$$H_0: \mu \leq 100 \text{ vs. } H_1: \mu > 100.$$

(You might imagine they're testing if there's a higher than average mean IQ this year to decide whether to revise the standard IQ test--which of course is not measuring "innate intelligence".)

(i) How large would the sample mean $\bar{X}$ need to be in order to reject H_0 at the .025 level? At the .005 level?

(ii) What is the test statistic d(X) (the standard Normal Z variable)?

(iii) Fill in the following chart, but attach your work (if you use the Morey app, you might share 1 or 2 screen shots).

$\bar{X}$ = 100	Z =	P-value =
$\bar{X}$ = 101	Z =	P-value =
$\bar{X}$ = 102	Z =	P-value =
$\bar{X}$ = 103	Z =	P-value =

(iv) Let the observed $\bar{X}$ = 103. How severely has the data warranted $\mu > 102$?

$$\mu > 103? \_\_ \mu > 105? \_\_\_$$

Explain, in your own words, but just in a sentence or two, the reasoning behind the assessment of the severity associated with $\mu > 105$.

2. In approximately 2, 1.5 spaced, pages, choose some of the *specific* key aspects of the Fisher vs Neyman-Pearson controversy as in the "triad" (also SIST p. 388-391) to discuss. Do not try to cover more than 2-3 points, terms, criticisms and contrasting positions/responses. Give at least one quote. Why is the Fisher-Neyman dispute said to be "pathological". (If it needs to be longer, that's fine.) The "triad" is on my blog: https://errorstatistics.com/2023/02/17/happy-birthday-r-a-fisher-statistical-methods-and-scientific-induction-with-replies-by-neyman-and-e-s-pearson/

3. In approximately 2, 1.5 spaced, pages, discuss how a severe tester proposes to demarcate the scientific credentials of an inquiry or test. Compare it to Popper's account of demarcation, as given in the selection from *Conjectures and Refutations* that we read.

HAVE FUN!