Stat414; **Fall 2024**; **Worksheet** 07; 20 Points; NAME:

1. Consider the Introductory Example 1 of the **Module**07 slides.

   (a) Test the Engineer's hypothesis. Clearly show all the seven steps of the testing of hypothesis problem.

   (b) Suppose we decided to use a different test: Reject H_0 when $\bar{X} > 174$. (See page 14 of the slide.). Compute the P(Type I Error) ($= \alpha$ for this test.

   (c) Compute P(Type II Error) for this test, when $\mu = 172$. (That is, compute $\beta(172)$.

   (d) Compute the α and $\beta(172)$ for the test used in part (a).

   (e) Plot the power curves of the two testing procedures and compare.

2. Consider the Introductory Example 2 of the **Module**07 slides.

   (a) Test the Biologist's hypothesis. Clearly show all the seven steps of the testing of hypothesis problem.

   (b) Plot the power curve.

   (c) Compare the above power curve to the power curves one would get for sample sizes 20 or 40.