**ECO 2200 Quiz 3**

The Alexander Bolt Company produces half-inch A-class stainless steel bolts that have a mean tensile strength of more than 4000 pounds per square inch (psi), the specified quality standard. The company wants to be sure that its A-class product is above the quality standard. A sample of 25 bolts is to be randomly selected from stock and tested for tensile strength.

Design a test of hypothesis to determine if there is overwhelming evidence that the bolts are better than the specified quality standard.

Sample values:

4023 3993 4009 4006 4039 3984 4003 4007 4007 4055 4004 4049 4000 3995 4019 4003 4029 4009 4041 4021 4012 3984 4040 4025 3986

1. Determine the null and alternative hypotheses.

2. If the significance level is 1%, what is the value of α?

3. From the sample, the average tensile strength is 4014 pounds per square inch, and the standard deviation is 20 pounds. What is the value of the test statistic?

4. Should we use the z or t distribution table for the critical value(s)?

5. What is/are the critical value(s)?

6. Do you reject or fail to reject the null hypothesis?

7. What is your conclusion in terms of the original question?