HT's and CI's for One and Two Variances

CREDIT: The questions on this document were written by Erik Packard, PhD, Associate Professor of Mathematics at Colorado Mesa University.

- Problem 7
    - Can we prove at the 5% significance level that Corn A has a population standard deviation (bushels per acre) over 45?
        A) What is the chance that we will conclude the population standard deviation is over 45 when it actually is not?
        B) What is the chance that we won't conclude the population standard deviation is over 45 when it actually is?
        C) Give the critical value(s) (from the appropriate table).
        D) Give the value of the test statistic (from the data).
        E) Is the answer Yes or No?
        F) What is the *p*-value?
        G) Describe the meaning of the *p*-value in everyday terms.
        H) Give a 95% CI for the population standard deviation (bushels per acre) for Corn A.

- Problem 8
    - Can we prove at the 5% significance level that the population standard deviation (bushels per acre) is higher for Corn A than that of Corn B?

        A) What is the chance we will conclude the population standard deviation for Corn A is higher than that of Corn B when it actually is not?

        B) What is the chance we won't conclude the population standard deviation for Corn A is higher than that of Corn B when it actually is?

        C) Give the critical value(s) (from the appropriate table).

        D) Give the value of the test statistic (from the data).

        E) Is the answer Yes or No?

        F) What is the *p*-value?

        G) Describe the meaning of the *p*-value in everyday terms.