Math 5301 Homework 14

For each of the following problems, determine which test is most appropriate, and perform that test in R.

1. The data frame `iris` in R contains measurements of sepal length/width and petal length/width for iris flowers in the setosa, versicolor, and virginica species. Use `help(iris)` for more information.

   (a) Which test would you use to compare petal lengths for setosa and versicolor flowers?

   (b) Which test would you use to compare sepal widths for setosa, versicolor, and virginica flowers?

2. Eight patients with voice impairments were treated with autologous transplantation of temporalis fascia into the vocal fold (ATFV). Their voice handicap index (VHI) was measured before and six months after treatment, with the following results:

Patient ID	Preop VHI	Postop VHI
1	28	1
2	15	14
3	25	17
4	31	30
5	16	19
6	35	28
7	19	7
8	22	17

   How would you compare the preop and postop VHI values?

3. The data frame `immer` contains yields in 1931 and 1932 for five varieties of barley in six locations. Restrict attention to the yields in 1931. Which test would you use to test the null hypothesis that the variety of barley has no impact on yield?