ENS 495 Prelab 7
Week of October 10th, 2016
Name: _____

1)

before	after	difference
6.67	9.76	-3.09
3.73	10.20	-6.46
5.87	9.78	-3.91
4.98	10.63	-5.65
3.04	8.55	-5.51

A paired t-test involves calculating the **difference** between 2 **pairs** of values, such as the value of a response variable before a treatment was applied to a subject minus its value after a treatment was applied. The code below caries out the subtraction necessary to do this but is missing a key symbol between the data frame name (df.paired) and the columns. Insert the proper symbol.

```
df.paired  difference <- df.paired  before - df.paried   after
```

2) What would be the sample size for a paired t-test with these data N = 5 or N = 10? (circle one).

See pages 331-332 in the text book for an example of a paired t-test , with info on determining sample sizes. In particular, look at the number of data points in Table 12.2-1 on page 331 and compare it to the sample size in the calculations on page 332.

3) Below is the output of two separate t-tests. The top is from a **paired t-test** and the bottom is from a **regular t-test**.
If I hadn't told you which was which, there are two clues you could use to determine this yourself. Circle them and explain what they are in the space below.

```
data:  y by x
t = -2.4074, df = 5, p-value = 0.06106
alternative hypothesis: true difference in means is not equal
 to 0
95 percent confidence interval:
 -2.42351795  0.07942542
sample estimates:
mean of the differences
              -1.172046
```

```
data:  y by x
t = -1.8991, df = 9.8696, p-value = 0.08715
alternative hypothesis: true difference in means is not equal
 to 0
95 percent confidence interval:
 -2.5496631  0.2055706
sample estimates:
 mean in group After mean in group Before
            0.256869             1.428915
```