Problem 1141:

The following code was used to analyze data1141 using one tail t-test.

```
#problem 1141
#importing the data1141
data1<-read.csv("/Users/Downloads/data1141.csv",header=T)
#Welch two sample t test
t.test(data1$X2008_mins,data1$X2003_mins,"greater",mu=0)
```

The generated output was:

```
        Welch Two Sample t-test

data:  data1$X2008_mins and data1$X2003_mins
t = 1.767, df = 31.341, p-value = 0.04348
alternative hypothesis: true difference in means is greater than 0
95 percent confidence interval:
 0.03670396       Inf
sample estimates:
mean of x       mean of y
    4.15            3.25
```

The p value was calculated to be 0.04348 which was less than the 0.05 significance level. This implies at 5% significance level, mean hold times for customers was significantly greater in 2008 as compared to that in 2003.

Problem 1150:

The following code was used to test the difference between reaction times in data_1150 using a paired t-test.

```
# importing data 1150
data2<-read.csv("/Users/Downloads/data1150.csv",header=T)
#paired t test
t.test(data2$After,data2$Before,"greater",paired=TRUE,mu=0,conf.level=
 0.995)
```

The output was the following:

```
        Paired t-test

data:  data2$After and data2$Before
t = 11.801, df = 37, p-value = 2.087e-14
alternative hypothesis: true difference in means is greater than 0
99.5 percent confidence interval:
 0.08428437       Inf
sample estimates:
mean of the differences
          0.1094737
```

Thus, the p value was equal to 2.087e-14. This is less than the significance level of 0.005. This implies there was a significant increase in reaction time due to alcohol. The program host did make his point.

Problem 1057:

The following code was used to analyze data1057 by one sample t test.

```
#importing data1057
data3<-read.csv("/Users/Downloads/data1057.csv",header=T)
#one sample t test
t.test(data3$Expense,mu=817)
```

The following was the output from the code.

```
data:  data3$Expense
t = 2.2073, df = 79, p-value = 0.0302
alternative hypothesis: true mean is not equal to 817
95 percent confidence interval:
 820.2983  880.8517
sample estimates:
mean of x
  850.575
```

The p value was 0.0302. At 0.05 significance level, the insurance expenditure was significantly different from $817.

The 95% confidence interval was calculated as (820.2983, 880.8517). If 95% confidence intervals like this were calculated a large number of times, they would contain the true mean 95% times.

No, the hypothesized mean $817 was not in the confidence interval.