1. **Problem**
   The waiting time (in minutes) at the cashier of two supermarket chains with different cashier systems is compared. The following statistical test was performed:

```
    Two Sample t-test

data:  Waiting by Supermarket
t = 3.8575, df = 132, p-value = 0.9999
alternative hypothesis: true difference in means is less than 0
95 percent confidence interval:
     -Inf 3.552905
sample estimates:
 mean in group Sparag mean in group Consumo
             5.859404              3.373846
```

   Which of the following statements are correct? (Significance level 5%)

   (a) The absolute value of the test statistic is larger than 1.96.

   (b) A one-sided alternative was tested.

   (c) The p-value is larger than 0.05.

   (d) The test shows that the waiting time is longer at Sparag than at Consumo.

   (e) The test shows that the waiting time is shorter at Sparag than at Consumo.

   Solution

   (a) True. The absolute value of the test statistic is equal to 3.857.

   (b) True. The test aims at showing that the difference of means is smaller than 0.

   (c) True. The p-value is equal to 1.

   (d) False. The test aims at showing that the alternative that the waiting time is shorter at Sparag than at Consumo. The test result is not significant ($p \geq 0.05$).

   (e) False. The test result ist not significant ($p \geq 0.05$).