Week 1 - Check Your Understanding

1. In simple linear regression, both the response and the predictor are usually assumed to be random variables.

   - a. True
   - *b. False

2. The variance of the response and the error are both assumed to be constant (does not depend on the predictors) and equal to σ^2.

   - *a. True
   - b. False

3. The least squared method is the only way to determine the parameters β_0 and β_1

   - a. True
   - *b. False

4. In the least square method, $\hat{\beta_0}$ and $\hat{\beta_1}$ minimizes

   - *a. The sum of all square errors
   - b. The sum of all absolute errors.

5. The total sum of squares is always greater than the Regression sum squares.

   - *a. True
   - b. False

6. The coefficient of determination can not be greater than 1.

   - *a. True
   - b. False

7. The hypothesis that there is no linear relationship between the response and the predictor is equivalent to

   - *a. $H_0 : \beta_1 \neq 0$
   - b. $H_0 : \beta_0 \neq 0$

8. We can use both the t-test and F-test to test for $H_0 : \beta_1 = 0$ vs. $H_\alpha : \beta_1 \neq 0$

   - *a. True
   - b. False