HW 1 - STA 3155

1. Do problems 3.1 and 3.2

2. Use the following to generate 25 random numbers from a normal distribution with mean 10 and variance 16

```
> set.seed(200)
>x<- rnorm(25, 10, 4)
```

   (set seed(200) guarantees that you all have the same random numbers)

   (a) Test $H_0 : \mu = 10$ against $H_a : \mu \neq 10$ at $\alpha = 0.05$ using R

   (b) Interpret the p-value of the test.

3. Use the following data to answer the following questions using R

Rent ($)	Size (square feet)
950	850
1600	1450
1200	1085
1500	1232
950	718
1700	1485
1650	1136
935	726
875	700
1150	956
1400	1100
1650	1285
2300	1985
1800	1369
1400	1175
1450	1225
1100	1245
1700	1259
1200	1150
1150	896
1600	1361
1650	1040
1200	755
800	1000
1750	1200

(a) Compute the covariance and correlation coefficient of Size and Rent

(b) Let $y =$ Rent and $x =$Size and fit the model

$$y_i = \beta_0 + \beta_1 x_i + \epsilon_i, i = 1, 2, \ldots, 25$$

(c) Interpret the values of b_0 and b_1 (the estimates of β_0 and β_1)

(d) Predict the value of the rent when Size equals 1050 square feet.