1. 

<table>
<thead>
<tr>
<th></th>
<th>mean</th>
<th>median</th>
<th>max</th>
<th>min</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>wage</td>
<td>957.9</td>
<td>905</td>
<td>3078</td>
<td>115</td>
<td>404.3608</td>
</tr>
<tr>
<td>educ</td>
<td>13.47</td>
<td>12</td>
<td>18</td>
<td>9</td>
<td>2.196654</td>
</tr>
<tr>
<td>exper</td>
<td>11.56</td>
<td>11</td>
<td>23</td>
<td>1</td>
<td>4.374586</td>
</tr>
</tbody>
</table>

R codes:

data=read.table("K:\\Fall2010Econ113\\WageData.txt", header=TRUE)

summary(data$wage, na.rm=TRUE)
sd(data$wage, na.rm=TRUE)
summary(data$educ, na.rm=TRUE)
sd(data$educ, na.rm=TRUE)
summary(data$exper, na.rm=TRUE)
sd(data$exper, na.rm=TRUE)

2.

The estimated coefficient on educ is 60.214, which means if educ increases by 1 year, wage increases by 60.214 dollar.

R^2 is 0.107, which means about 10.7% of the variation in wage is explained by educ.

R codes:

reg1=lm(wage~educ, data)

summary(reg1)

regression results:

Call:

lm(formula = wage ~ educ, data = data)

Residuals:

Min  1Q Median  3Q  Max
-877.38 -268.63 -38.38 207.05 2148.26

Coefficients:

\[
\begin{align*}
\text{Estimate} & \quad \text{Std. Error} & \quad \text{t value} & \quad \text{Pr(>|t|)} \\
(\text{Intercept}) & 146.952 & 77.715 & 1.891 & 0.059 \\
\text{educ} & 60.214 & 5.695 & 10.573 & <2e^{-16} ***
\end{align*}
\]

---

Signif. codes: 0 ‘****’ 0.001 ‘***’ 0.01 ‘**’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 382.3 on 933 degrees of freedom

Multiple R-squared: 0.107, Adjusted R-squared: 0.106

F-statistic: 111.8 on 1 and 933 DF, p-value: < 2.2e-16

10.6% of variation in wage is captured by the model.

3.

![Wage VS Education](image)

**R codes:**
plot(data$educ, data$wage, main="Wage VS Education", xlab="Education", ylab="Wage")

4.

![Wage VS Experience](image)

**R codes:**

**Method 1:**

```r
reg2=lm(wage~exper, data)
data$wage_hat=predict(reg2)
plot(data$exper, data$wage, main="Wage VS Experience", xlab="Experience", ylab="Wage", col="red")
lines(data$wage_hat)
```

**Method 2:**

```r
plot(data$exper, data$wage, main="Wage VS Experience", xlab="Experience", ylab="Wage", col="red")
reg2=lm(wage~exper, data)
abline(reg2)
```