> #Read in the data.
> #sep="\t" shows that the columns are separated with a tab.
> #header=F says there is no beginning line with variable names.
> Highway<-read.table("HighwaySign.txt", header=F, sep="\t",
col.names=c("Age","Distance"))

> #Make sure it worked by printing out the first 6 lines:
> head(Highway)

Age  Distance
1  18      510
2  20      590
3  22      560
4  23      510
5  23      460
6  25      490

> #Create the regression model. Call it "HWModel"
> HWModel<-lm(Distance~Age,data=Highway)

> #See a summary of the model, including coefficients, etc.
> summary(HWModel)

Call:
  lm(formula = Distance ~ Age, data = Highway)

Residuals:
  Min      1Q  Median      3Q     Max
-78.231 -41.710   7.646  33.552 108.831

Coefficients:
               Estimate Std. Error t value Pr(>|t|)
(Intercept)   576.6819    23.4709  24.570  < 2e-16 ***
Age           -3.0068     0.4243  -7.086 1.04e-07 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 49.76 on 28 degrees of freedom
Multiple R-squared: 0.642, Adjusted R-squared: 0.6292
F-statistic: 50.21 on 1 and 28 DF, p-value: 1.041e-07

> #Get 95% confidence intervals for the intercept and slope.
> confint(HWModel)

2.5 %     97.5 %
(Intercept) 528.604017 624.759857
Age          -3.876051  -2.137620

> #Get 95% confidence interval for the mean of Y's at X = 30.
> #se.fit=T includes value of the standard error in the output
> predict(HWModel, list(Age=30),se.fit=T,interval="confidence")

$fit

    fit  lwr  upr
1 486.4769 460.4091 512.5447

$se.fit

[1] 12.72588
> #Get 95% prediction interval for an individual Y when X = 30.
> predict(HWModel, list(Age=30), se.fit=T, interval="p")
> fit
>   fit  lwr  upr
> 1 486.4769 381.2644 591.6893
>
> #Get confidence interval and prediction interval for Age = 50
> predict(HWModel, list(Age=50), se.fit=T, interval="confidence")
> fit
>   fit  lwr  upr
> 1 426.3402 407.7097 444.9706
>
> #Quit R
> q()