STA32HW5

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Question 1

Part c

```
library(faraway)
teengamb <- faraway::teengamb
```

```
# Fit both models
lm0 <- lm(gamble~sex+income, data = teengamb)
lmo <- lm(gamble~income,data = teengamb)
# Compute the SSE of the both models
SSE0 <- (t(lm0$residuals)%*%lm0$residuals)[1]
SSEo <- (t(lmo$residuals)%*%lmo$residuals)[1]
# Define n, p, and q
n <- dim(model.matrix(lmo))[1]
p <- dim(model.matrix(lm0))[2]
q <- dim(model.matrix(lmo))[2]
# Compute the F statistic
Fstat <- ((SSEo-SSE0)/(p-q))/(SSE0/(n-p))
Fstat
```

```
## [1] 10.09598
```

Part d

```
# Compute the p value
pval <- 1 - pf(Fstat,p-q,n-p)
pval
```

```
## [1] 0.00271732
```

Part e

```
# Compute the Fstar
Fstar <- qf(0.95,p-q,n-p)
Fstar
```

```
## [1] 4.061706
```

Question 2