```r
### Residual plots/diagnostics demo

## Florida oranges revisited
dat <- read.csv("florange.csv")
plot(dat$acres,dat$boxes)
```

```r
lm.1 <- lm(dat$boxes~dat$acres)
summary(lm.1)

# Residual plot: vs fitted values
plot(lm.1$fitted.values, lm.1$residuals, xlab = "Fitted Values", ylab = "Residuals")
```

```r
# Residual plot: vs predictor (just one in this case)
plot(dat$acres, lm.1$residuals, xlab = "Acres", ylab = "Residuals")
```

```r
# Residual plot: vs i (just to demo plot; no time/space ordering here)
plot(1:nrow(dat), lm.1$residuals, xlab = "Index", ylab = "Residuals")
```

```r
# Histogram of residuals
hist(lm.1$residuals)
```

```r
# QQ plot of residuals
qqnorm(lm.1$residuals)
qqline(lm.1$residuals, col="blue", lwd = 2)
```

```r
## Rocket data revisited
rocket <- read.csv(file="rocket.csv")
mr <- lm(thrust ~ nozzle + propratio, data = rocket)
summary(mr)

# Residual plot: vs fitted values
plot(mr$fitted.values, mr$residuals, xlab = "Fitted Values",
     ylab = "Residuals")
```

```r
# Residual plot: vs predictors
plot(rocket$nozzle, mr$residuals, xlab = "Nozzle (1 = large)",
     ylab = "Residuals")
```

```r
plot(rocket$propratio, mr$residuals, xlab = "Propellant to fuel ratio",
     ylab = "Residuals")
```

```r
# Histogram of residuals
hist(mr$residuals)
```

```r
# QQ plot of residuals
qqnorm(mr$residuals)
qqline(mr$residuals, col="blue", lwd = 2)
```