What are the five assumptions of the simple linear regression model?

- [ ] Distributions similarly shaped
- [x] Normal errors
- [ ] Normal X values
- [x] Linear relation
- [ ] Large sample (n > 30)
- [x] Independent errors
- [x] Constant variance
- [x] Fixed X values
- [ ] Random X values
- [ ] Normal Y values

Which regression assumption(s) does the residuals versus fitted values plot diagnose?

- [ ] Normal errors
- [ ] Fixed X values
- [ ] Normal Y values
- [ ] Large sample (n > 30)
- [ ] Normal X values
- [ ] Distributions similarly shaped
- [x] Constant variance
- [ ] Independent errors
- [ ] Random X values
- [x] Linear relation

Which regression assumption(s) does the Q-Q Plot of the residuals diagnose?

- [ ] Linear relation
- [ ] Distributions similarly shaped
- [ ] Random X values
- [ ] Fixed X values
- [ ] Normal X values
- [ ] Independent errors
- [ ] Large sample (n > 30)
- [ ] Constant variance
- [x] Normal errors
- [ ] Normal Y values

Which regression assumption(s) does the Residuals versus Order plot diagnose? (Remember, this plot can only be created when the data was collected in a specific order.)

- [x] Independent errors
- [ ] Distributions similarly shaped
- [ ] Normal errors
- [ ] Normal Y values
- [ ] Constant variance
- [ ] Fixed X values
- [ ] Linear relation
- [ ] Normal X values
- [ ] Random X values
- [ ] Large sample (n > 30)

Perform the following simple linear regression in R.

```
> plot(Height ~ Volume, data=trees)
> trees.lm <- lm(Height ~ Volume, data=trees)
> abline(trees.lm)
```

Check the assumptions of the linear regression using the following commands.

```
> par(mfrow=c(1,2))
> plot(trees.lm, which=1:2)
> par(mfrow = c(1,1)) #This resets your plotting window for future plots.
```

Simple Linear Regression does not appear appropriate for these data. Which of the regression assumptions appear to be violated? (Note: some of the options below are not assumptions of linear regression.)

- [ ] Independent errors
- [x] Constant variance
- [x] Normal errors
- [x] Linear relation
- [ ] Fixed X values
- [ ] Normal Y values
- [ ] Large sample (n > 30)
- [ ] Random X values
- [ ] Distributions similarly shaped
- [ ] Normal X values