



Lab 11

PH142 Fall 2025

Announcements

- **Lab 11:** due 11/21 at 11:59pm
- **Quiz 9:** due 11/21 at 11:59pm

Coming Up...

- **Data Project Part 3:** due 12/5 at 5pm

*You must check in with your assigned GSI before submitting part 3



Week 13 Lecture Review

Inference for Regression

Assumptions:

1. **Linearity:** The relationship between x and y is linear in the population
2. **Normality of Residuals:** Variable y varies Normally around the line of best fit
3. **Independence:** Observations are independent
4. **Constant Variance:** The standard deviation of the responses is the same for all values of x

Week 13 Lecture Review

Evaluating Assumptions

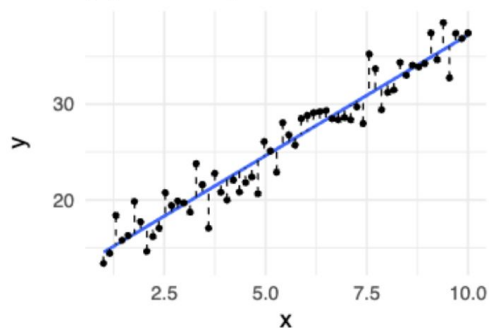
We can use different diagnostic plots to test our assumptions:

	What to Look For
Scatter plot of data w/ regression line	No trend, residuals are sometimes positive and sometimes negative
Q-Q plot of residuals	Residuals closely follow the line
Scatter plot of fitted vs. residuals	No trend, random scatter
Box plot of y vs. residuals	IQR of residuals box smaller than y box

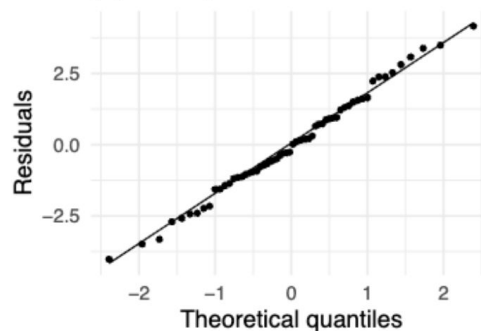
Week 13 Lecture Review

Good Example
(Assumptions met)

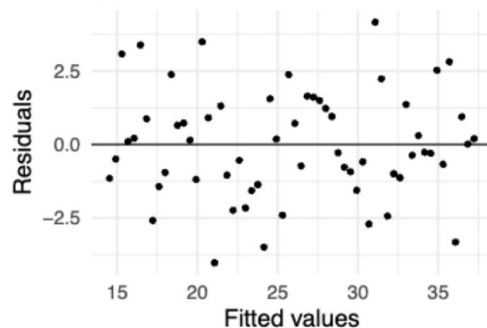
(a) Scatter plot



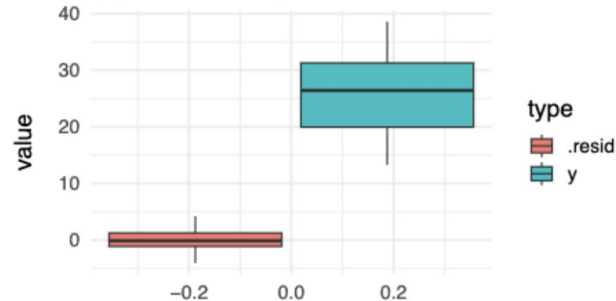
(b) Q-Q plot



(c) Fitted vs. residuals



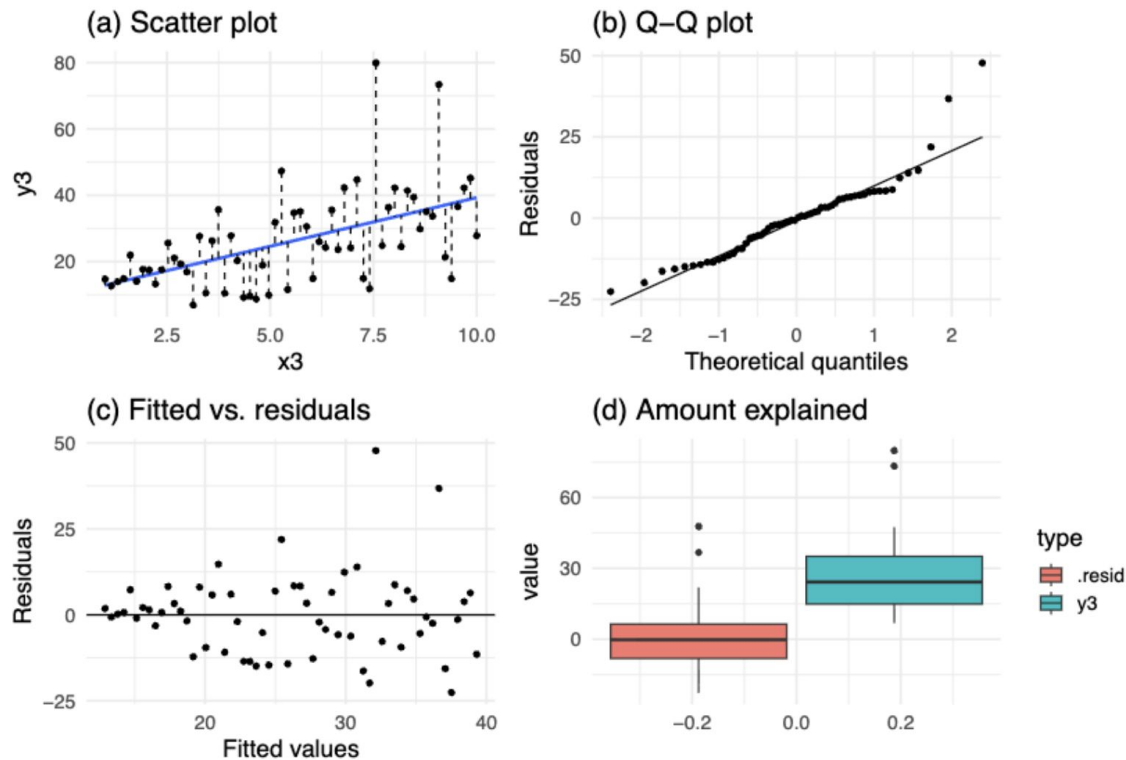
(d) Amount explained



Week 13 Lecture Review

Bad Example

(Assumptions not met)





LAB 11 Walkthrough

Lab Submission

- Follow the directions on the LAB11 file
- Submit using the **Terminal Tab** (next to the console in the bottom left pane)
 - Copy and paste the given line into the terminal
 - Follow prompts (NOTE: the terminal will **not** show your password being typed out!)
- **CHECK IN GRADESCOPE THAT ALL YOUR TESTS PASSED**