

Section 9.2: Linear Regression -

Tuesday, April 3, 2018 9:20 AM

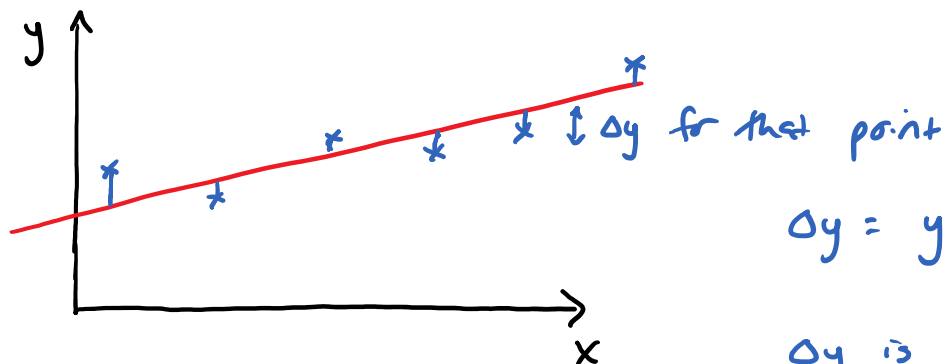
the Residuals Plot

how can you determine whether a linear fit is appropriate?

- ① look at the graph of the data
- ② examine the residuals plot

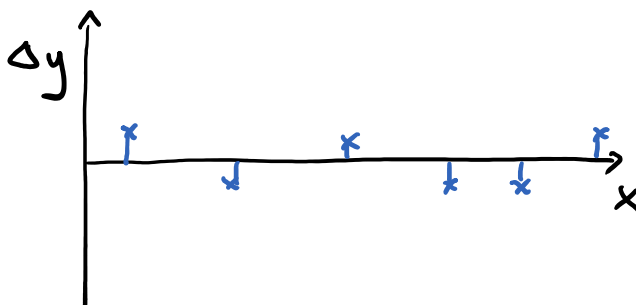
the residuals plot.

suppose we have some linear data and we've calculated the best-fit line



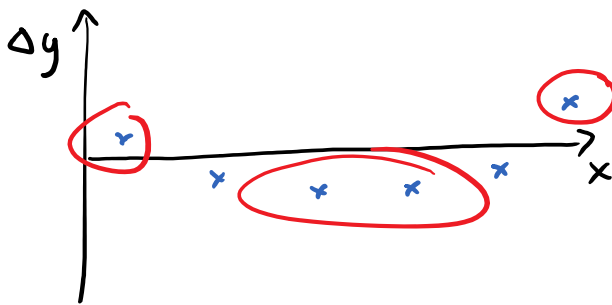
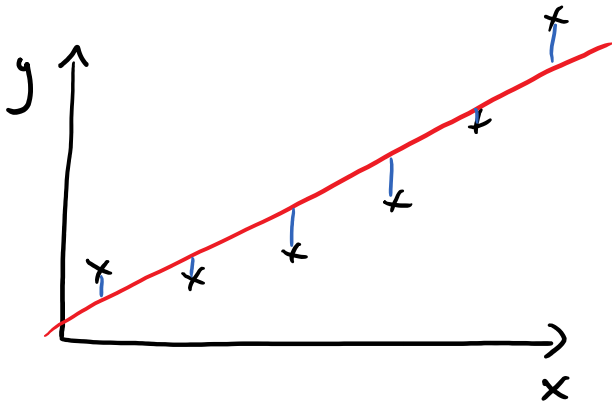
$$\Delta y = y_{\text{actual}} - y_{\text{fit}}$$

Δy is called the residual



← so this is the residuals plot

what does the residuals plot look like for non-linear data?



notice that this residuals plot has structure

- the points in the middle are all negative

- points at the ends are positive

what do we look for?

- if the residuals are just random scatter (noisy), the fit is an appropriate one

- if the residuals have structure, fit was not appropriate

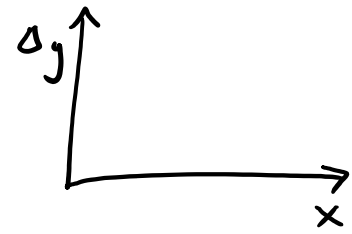
note: sometimes the residuals are plotted:

Δy ↑

Δx ↑



instead of



- but since we are only looking for structure or its absence, doesn't matter which of x or y is plotted