

Math 300Z In-class activity

Intervals by eye

In this activity, you are given some point plots of data: y vs x . Your job is to

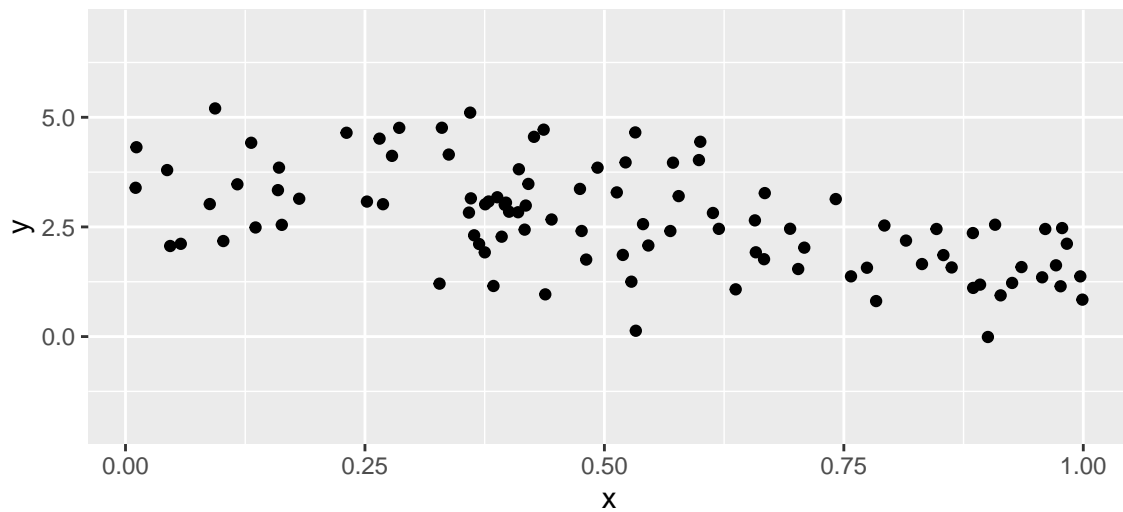
1. sketch in an appropriate model fitted (by eye) to the data.
2. add a prediction band showing for each value of x what is the **prediction** interval
3. transform the prediction band into a **confidence** band.

TIPS:

- a. The fitted model will be a line or curve, or in the case of Model 3, two lines.
- b. The bounds of the prediction band will be more-or-less parallel to the fitted model, but should include roughly 95% of the n points in the plot.
- c. The confidence band is narrower than the prediction band by a factor of $1/\sqrt{n}$.

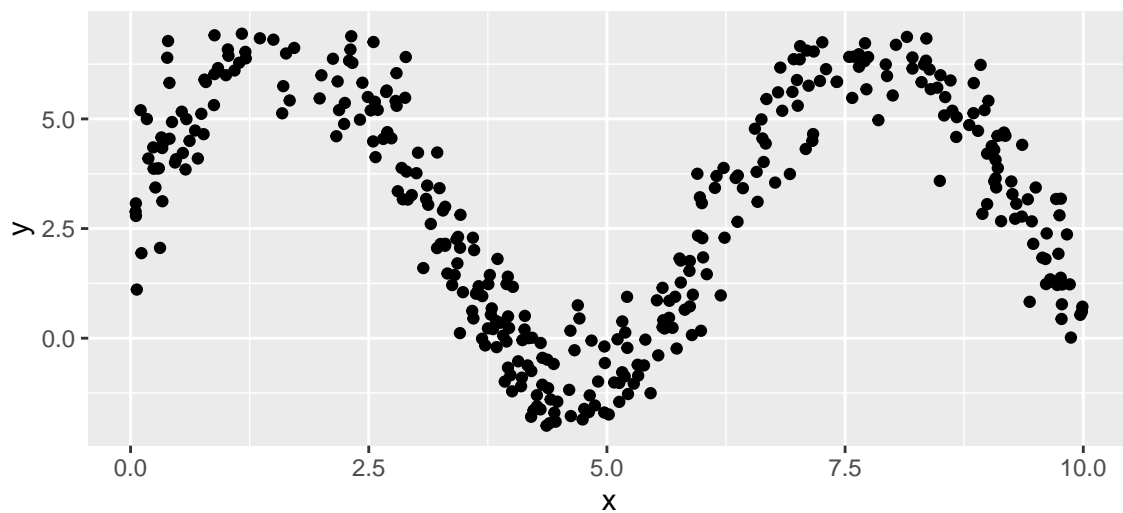
Model 1: A straight-line model $y \sim x$

$n=100$



Model 2: A sine-wave model, $y \sim \sin(x)$

$n=400$



Model 3: A function of two variables, $y \sim x + \text{group}$

n=200

