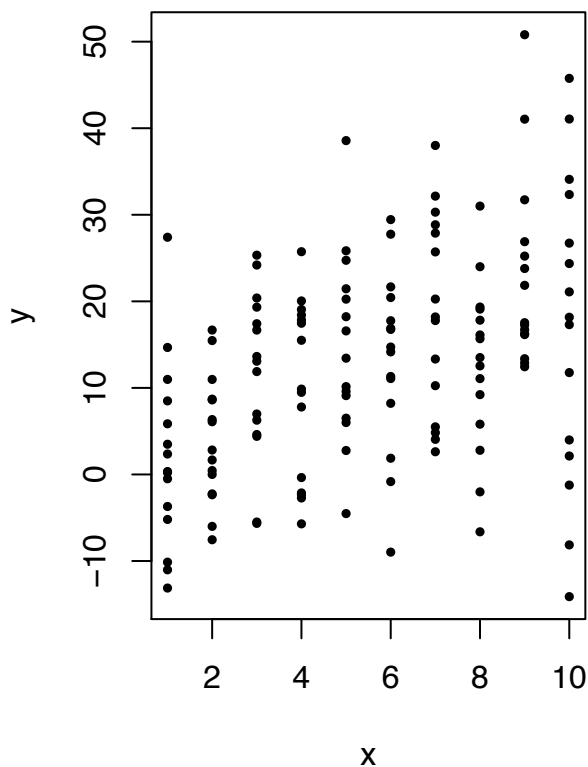


$$\mu_i = \beta_0 + x_i$$

$$y_i \sim \text{normal}(\mu_i, \sigma^2)$$

$$i = 1, \dots, n$$

**Completely random design**



$$\mu_{ij} = \beta_{0_j} + x_{ij}$$

$$y_{ij} \sim \text{normal}(\mu_{ij}, \sigma^2)$$

$$\beta_{0_j} \sim \text{normal}(\mu_{\beta_0}, \sigma_{\beta_0}^2)$$

$$j = 1, \dots, J$$

$$i = 1, \dots, n_j$$

**Grouped design**

