

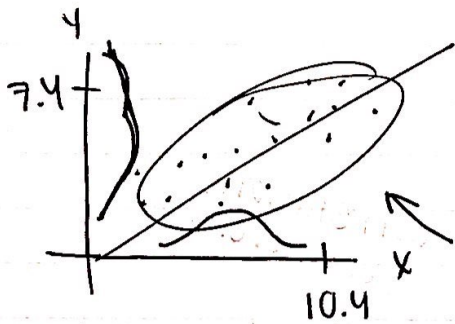
STAT 7 LECTURE 2 independent samples 11/21/19

HW 3 due sun night

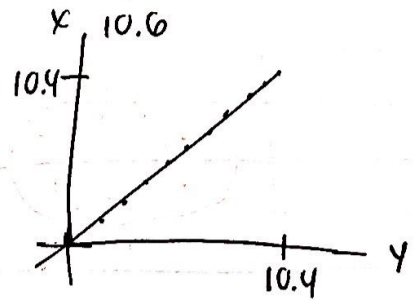
Quiz 7 due tonight

Quiz 8 due next tues

At least 1 make up lecture: Mon 2 Dec and/or Wed 4 Dec



elliptical scatterplot
bivariate normal dist.



Karl Pearson
(Epson & Mymon)

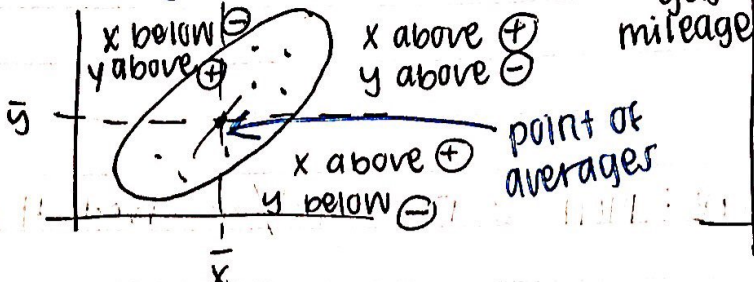
$$\begin{array}{c}
 \begin{array}{|c|} \hline y_1 \\ y_2 \\ \vdots \\ y_n \\ \hline \end{array} \\
 \text{mean } \bar{y} \\
 \text{SD}^* \sigma_y^*
 \end{array}
 \quad \Bigg| \quad
 \begin{array}{|c|} \hline x_1 \\ x_2 \\ \vdots \\ x_n \\ \hline \end{array} \\
 \text{mean } \bar{x} \\
 \text{SD}^* \sigma_x^*
 \end{array}$$

$$y = x$$

FIN 101 VII 2019/20

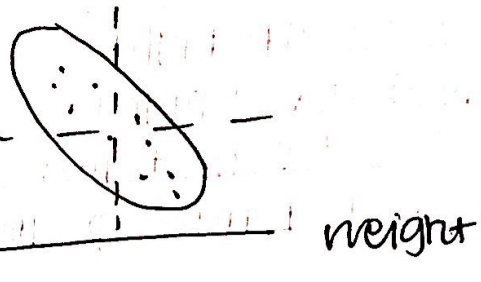
$(r > 0)$

positive linear assoc.



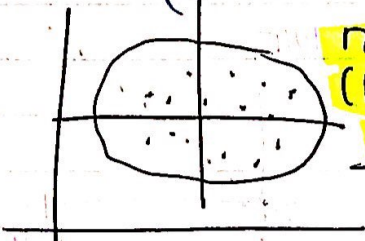
$(r < 0)$

negative linear assoc.



$(r = 0)$

no (linear) assoc.



correlation (coefficient)

$$r = \frac{1}{n} \sum_{i=1}^n \left(\frac{x_i - \bar{x}}{s_x^*} \right) \left(\frac{y_i - \bar{y}}{s_y^*} \right)$$

$$s_x^* = \sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2} \quad \neq \text{similarly for } s_y^*$$

$$\begin{bmatrix} y_1 \\ \vdots \\ y_n \end{bmatrix}$$

mean \bar{y}

free to vary \rightarrow

$$\begin{bmatrix} \checkmark \\ \vdots \\ \checkmark \\ x \end{bmatrix}$$

mean \bar{y}

$$\begin{bmatrix} \checkmark \\ \vdots \\ \checkmark \end{bmatrix} \text{ (n)}$$

mean \bar{y}

$$s_D \quad s_y = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (y_i - \bar{y})^2}$$