

3.30 pm

D.I.L. Sec 9 #1

AMS 57
16 Nov
09

p. 12-99

$$h = 8$$

①

$$(9) \bar{x} = -1.75^{\circ}C$$

$\bar{y} = 3.6$ ml/g/hr
of body wt.
exy.

x = temp
y = oxy gen

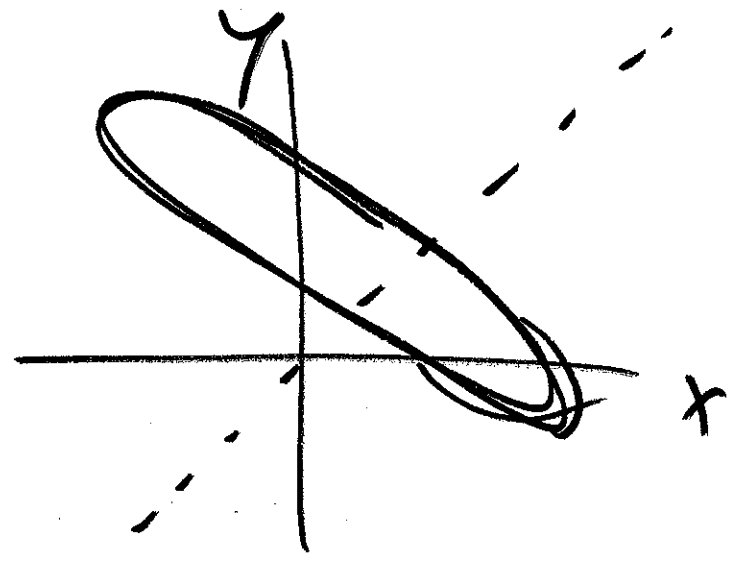
$$s_x = 12.7^{\circ}C$$

$$s_y = 1.1$$

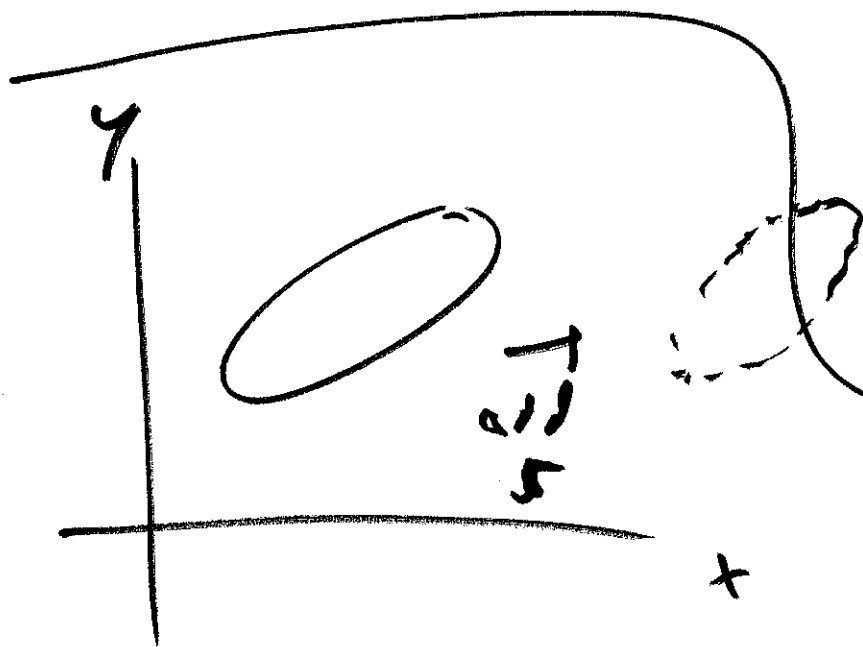
$$r = -.9904$$

$$r(x, y) =$$

$$r(y, x)$$



$$^{\circ}F = \frac{9}{5} \cdot (^{\circ}C) + 32$$



$$\begin{matrix} \text{temp } ^{\circ}C & \text{temp } ^{\circ}F \\ \begin{pmatrix} -18 \\ \vdots \\ +19 \end{pmatrix} & \begin{pmatrix} -0.4 \\ \vdots \\ 66.2 \end{pmatrix} \end{matrix}$$

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

if I measure temp. in $^{\circ}F$

$$\left(\frac{\cancel{1} x_i - \cancel{1} \bar{x}}{\cancel{1} s_x^*} \right) \cdot \left(\downarrow \right)$$

& you measure it in $^{\circ}C$,

the corr. between temp.

& oxygen will be the same

pop
all similar birds

Sample
the observed birds

I.D. ③
possible values of v

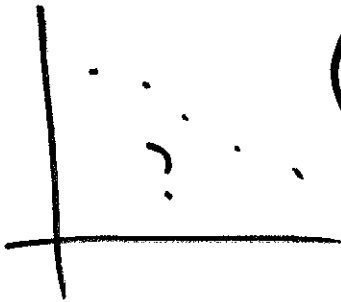
oxy. temp (actual)
 $N_0 = ?$
 (b_{ij})
 $\begin{pmatrix} y & x \end{pmatrix}$
 like stars = IID

oxy. temp.
 $\begin{pmatrix} y & x \end{pmatrix}$
 $n = 8$

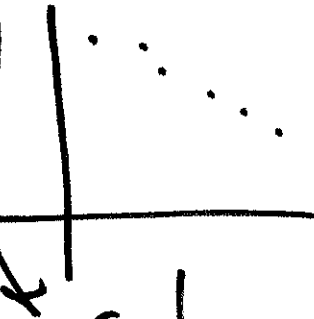
$\begin{pmatrix} -.99 \\ -.97 \\ \vdots \end{pmatrix}$
 \uparrow
 $M = 0$
 \downarrow

corr. $\rho = ?$

corr $r = -.99$



hyp. IID
 pop. scatter plot



low \square
 $E(v) = \rho$
 high \square
 $SE(v) = .057$

$\begin{pmatrix} | \end{pmatrix}$ $n=8$

corr $r = -.97$

low \square
 high \square
 ρ

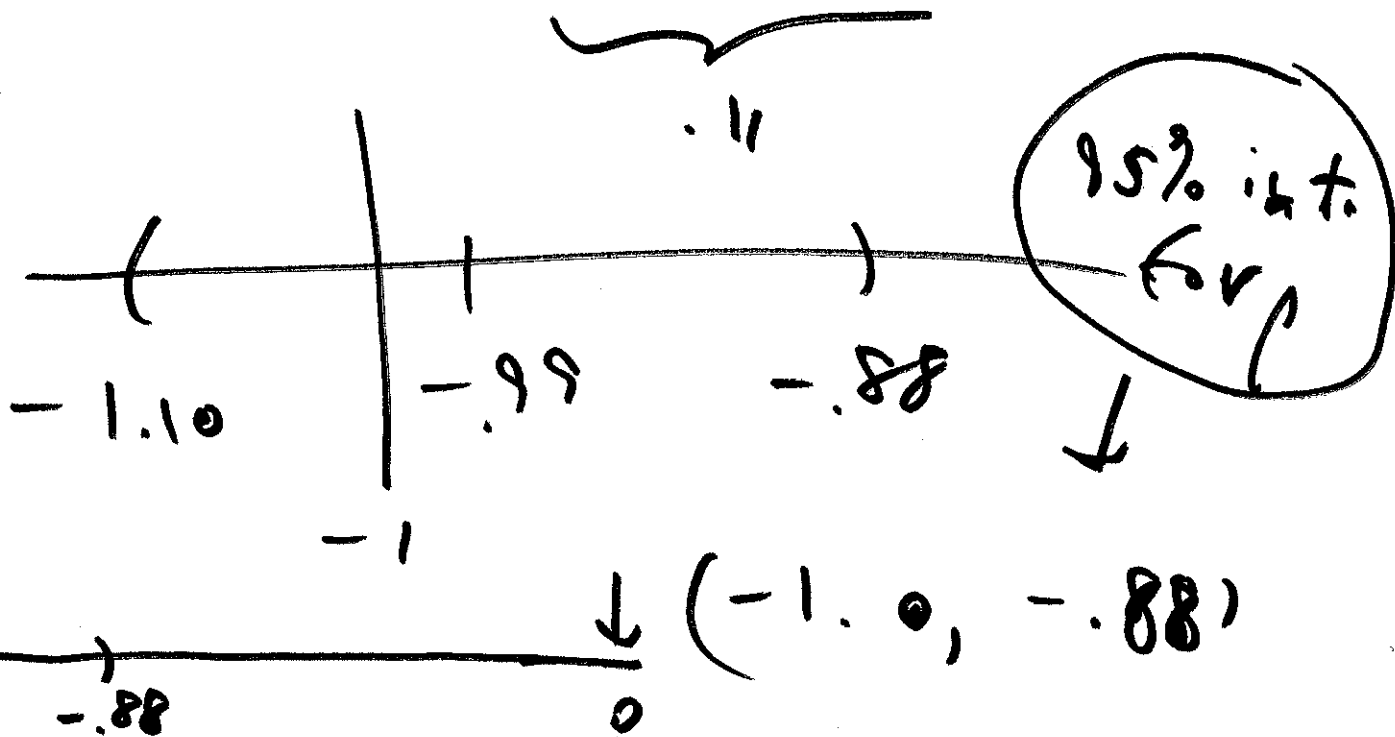
① $E_{IID}(v) = \rho$

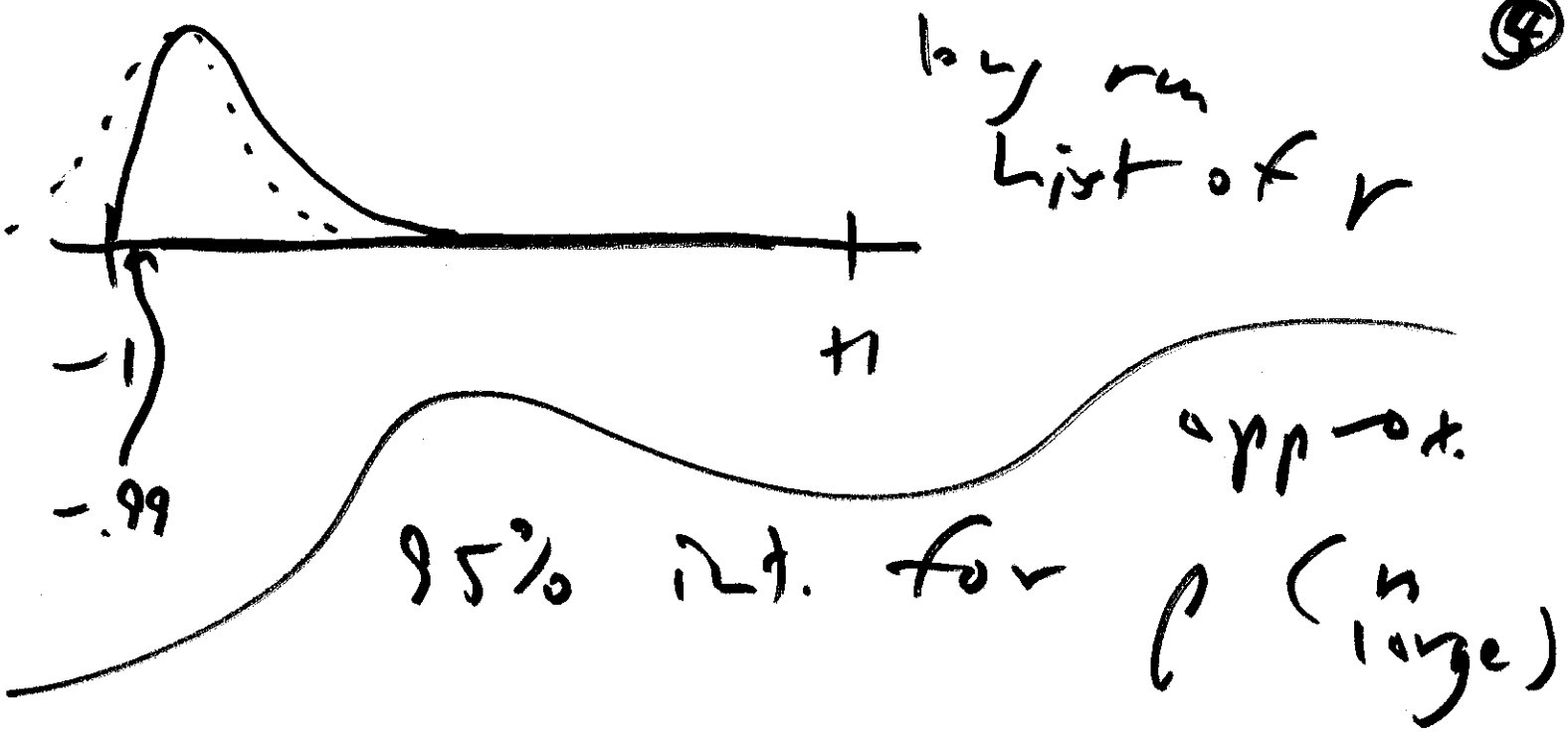
formula (16), (R-26)

② $SE_{IID}(v) = \sqrt{\frac{1-r^2}{n-2}} = 0.057$

unknown pop. quantity of interest	$\rho =$ pop. corr. between temp & oxygen
estimate of ρ	$r = -.99$
give or take for r est. of ρ	$\hat{SE}(r) = .057$
95% int. for ρ	$r \pm 1.96 \hat{SE}(r)$ formula (16) R-26

$$-.99 \pm (2)(.0577)$$





this int (way) does not include 0, so this ~~low~~ low. is (highly) statistic (probably real in pop.)

DS of #1 p. R-59 2 indep. samples,

cont. outbreak: like Dysphoria

form. (11-14) p. R-25 case study from class