

Discussion
Section,
week of
8-12 oct
2018

Disc. Sec 2
problem 2(c)

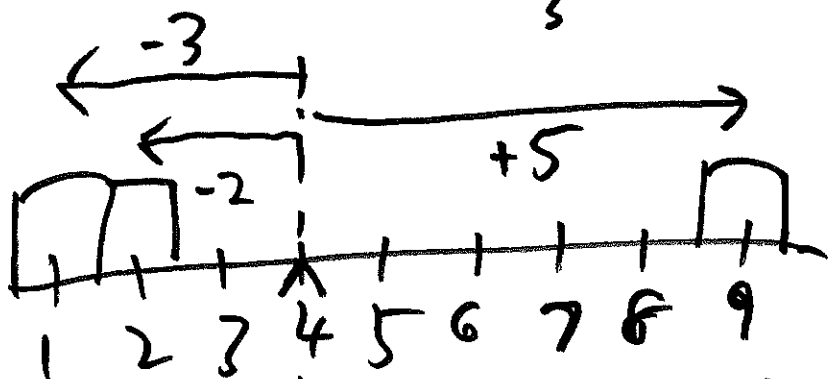
p. R-19

ANS 7
fact 18

what columns
for each variable ①

$$\begin{bmatrix} 1 \\ 2 \\ 9 \end{bmatrix} \quad n=3$$

$$\text{mean } \frac{12}{3} = 4$$



mean = balance point

outlier

$$\begin{bmatrix} 1 \\ 2 \\ 9 \end{bmatrix} \xrightarrow[\text{mean } 0]{\text{subtract } 4} \begin{bmatrix} -3 \\ -2 \\ +5 \end{bmatrix}$$

$$\begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_n \end{bmatrix} \xrightarrow[\text{mean } 0]{\text{subtract } \bar{y}} \begin{bmatrix} y_1 - \bar{y} \\ y_2 - \bar{y} \\ \vdots \\ y_n - \bar{y} \end{bmatrix}$$

deviations
from the
mean

3.3	y_1	↑ n ↓
3.5	y_2	
3.6	\vdots	
\vdots	\vdots	
4.5	y_n	

mean \bar{y}
 y_{bar}

1 row
for
each
subject
of
study

whom

Let's show that

$$\frac{1}{n} \sum_{i=1}^n (y_i - \bar{y}) = 0$$



$$\frac{1}{n} \left[(y_1 - \bar{y}) + (y_2 - \bar{y}) + \dots + (y_n - \bar{y}) \right]$$

$$= \frac{1}{n} \left[(y_1 + y_2 + \dots + y_n) - (\bar{y} + \dots + \bar{y}) \right]$$

$$= \frac{1}{n} (y_1 + y_2 + \dots + y_n)$$

$$- \frac{1}{n} (n\bar{y})$$

$$= \bar{y} - \bar{y} = 0$$

(int. or ratio) (disc. quant.)

0
0
1
0
0

≥ 6?

regol. data
no
yes
no
yes
no

original data
4
7
3
6
4

3(9)
R-20

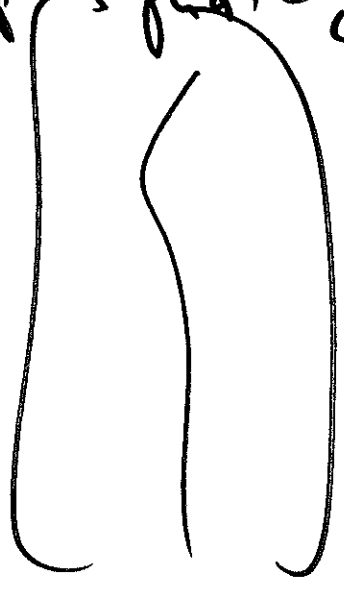
n=5

more informative

(disc.) (no m. out.) (qual.)

3(b) phosphate concentration

quant.
cont.
ratio



$n=60$

hist ✓

1 row for each stream location

3(c)

temp ($^{\circ}C$)

77 $^{\circ}F$

- 25.0
- 22.8
- ⋮
- ⋮

quant.
cont.

interval

$n=44$

hist? γ

1 row for each height

3(d)

- hist?
 - no
 - qual.
 - nominal
 - not
 - ord.
- turtle
- bird
- ⋮

$n=?$

bar graph? \odot

1 row for each vertebrate animal

Disc. Ser.

2 (R-29)

(3.25-3.35)

(cm) value	(count) raw freq	raw freq (count) ④
3.3	1	1
3.4	0	
3.5	1	3
3.6	2	
3.7	1	4
3.8	3	
3.9	3	7
4.0	4	
4.1	3	5
4.2	2	
4.3	2	3
4.4	1	
4.5	1	1

$n = 24$

