

this time:

variable types; histogram

AMS 57
10 Apr 18

next time:

center & spread; normal curve

huk
1 hour due

11:59 pm Fri 20 Apr 2018

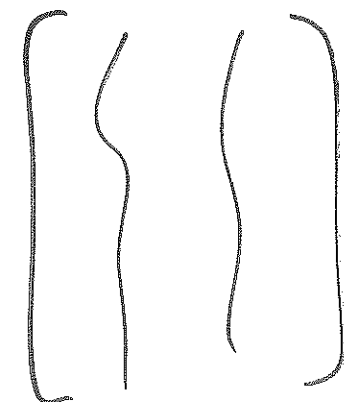
$$^{\circ}F = \frac{9}{5} ^{\circ}C + 32^{\circ}$$

wing length (cm)

- 4.4
- 3.6
- 4.1
- ⋮
- ⋮

$n=24$

1 row for each butterfly



1 row for each individual

1 column for each variable

(count)

sort

- 3.3
- 3.5
- 3.6
- 3.6
- 4.5

wing length value (cm)	raw frequency
3.3	1
3.4	0
3.5	1
3.6	2
⋮	
4.5	1

$n=24$

variable

possible values

eye color in humans

qual

categorical

not dich.

brown, blue, black

nominal

green

qualitative

qual

nominal

brown black

hair color in hamsters

qual

brown, black

dichotomous

ordered categorical

success at maze running

qual

very slow, slow, moderate, fast, very fast

qual

ordinal

seedling height

(cm)

quant

7.423 cm

ratio

continuous

7.017 cm

Quantitative

(quant)

plant size

leaves

(count)

quant

discrete

ratio

46, 111, ...

pure # (counts)

3 variables: quant

qual

1 column for each variable

1 row for each animal

	Animal ID	Age	Hair color
	45	2	0
	333	0	2
	⋮	⋮	⋮

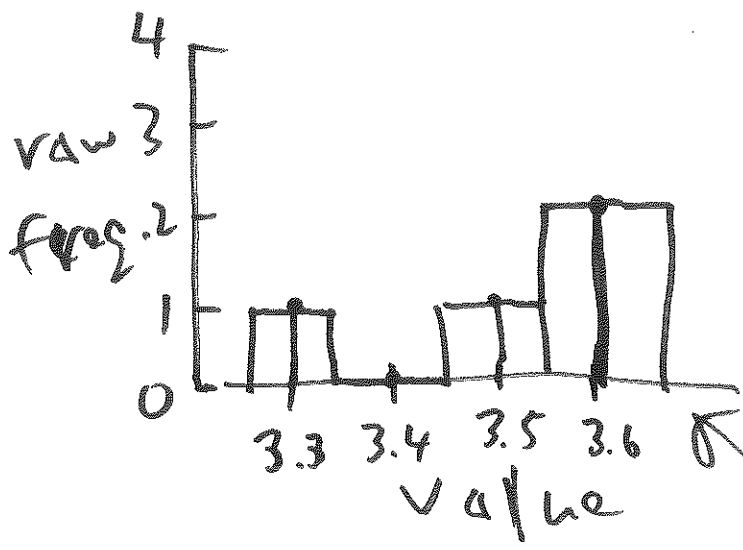
mean

~~no meaning~~

meaningful

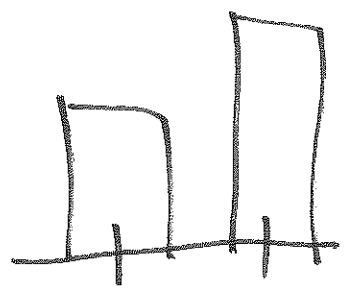
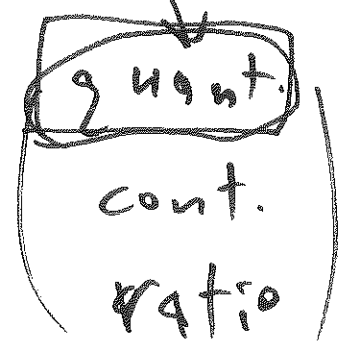
~~no meaning~~

no meaning



etc. histogram (raw freq.)

wing length (cm)

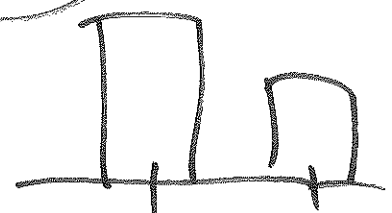


brown black

eye color qual.

not a hist.

bar graph



black brown

eye color

site
LTB
BE
LTB
TBC
⋮

1 row for each nest

qual.

nominal

not dich.

can hist? no

bar graph? yes

amount of pigments for

FS
HS
:

1 row
for each
statfish

quant.

ordinal

not
dich.

hist? no bar graph? yes

pups

4
6
5
:

1 row
for each
litter

quant

discrete

ratio

hist? yes

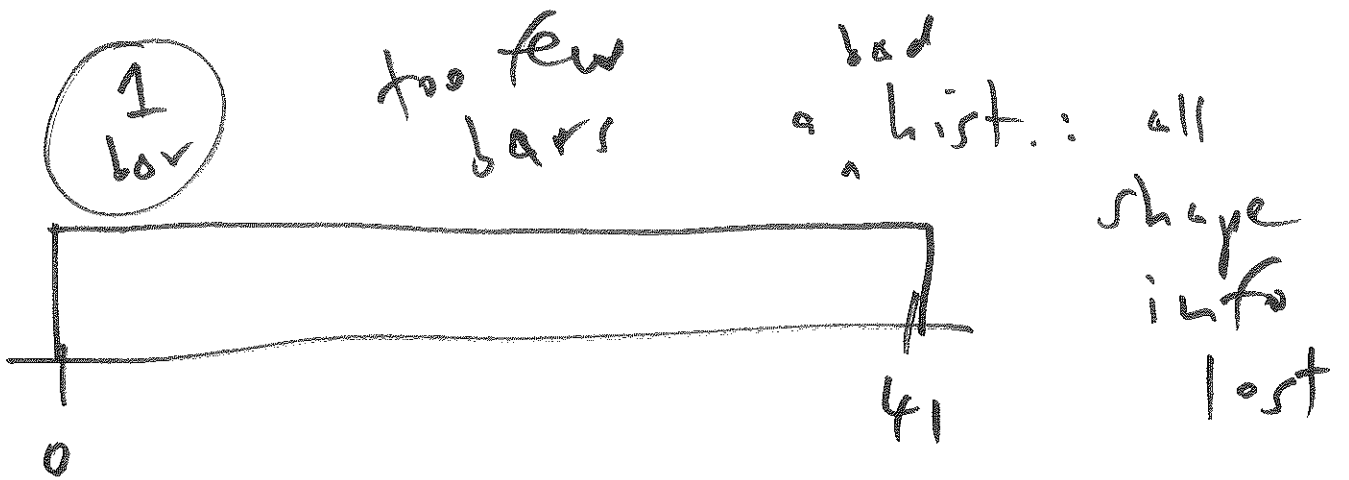
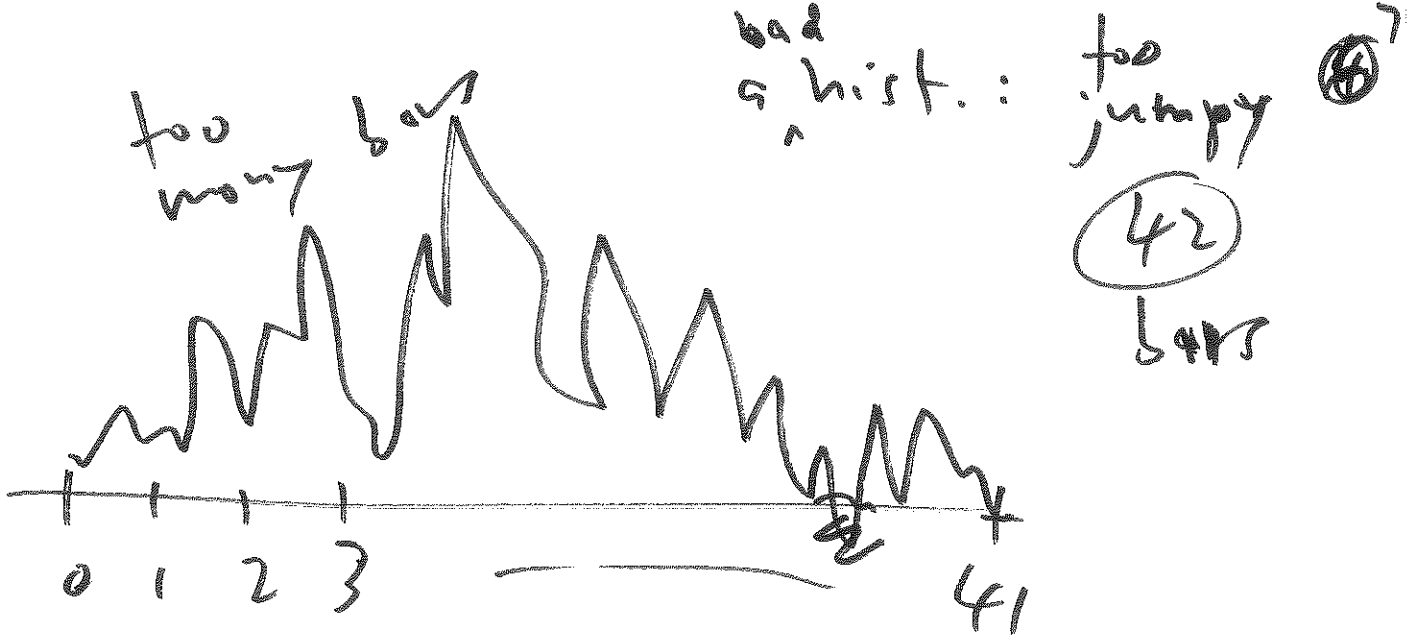
aphids

21
14
33
:

1 row
for
each
clover
plant

quant.
discrete
ratio

hist? yes



phosph. conc.

8.63
9.14
⋮
⋮

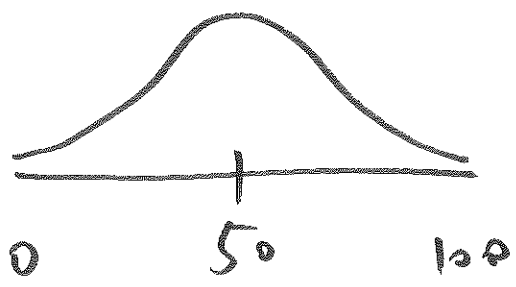
1 row
for
each
leaf

Σ want.

cont.

ratio

List? yes

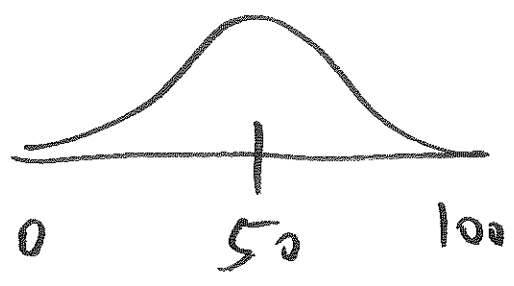
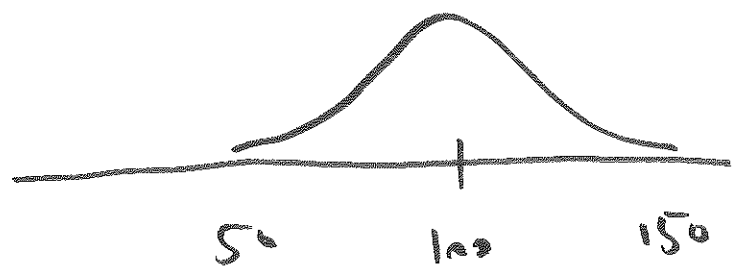


same spread &

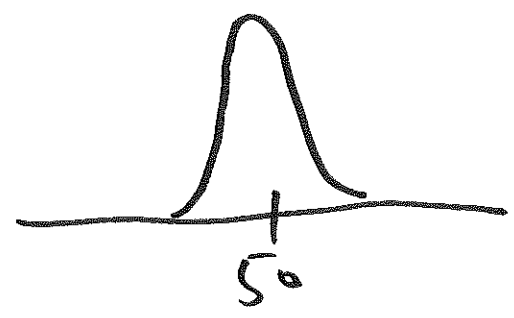
shape

different

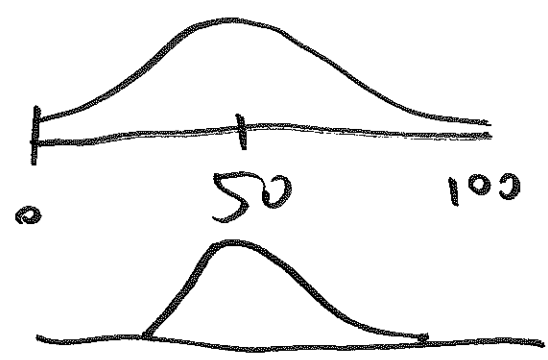
center



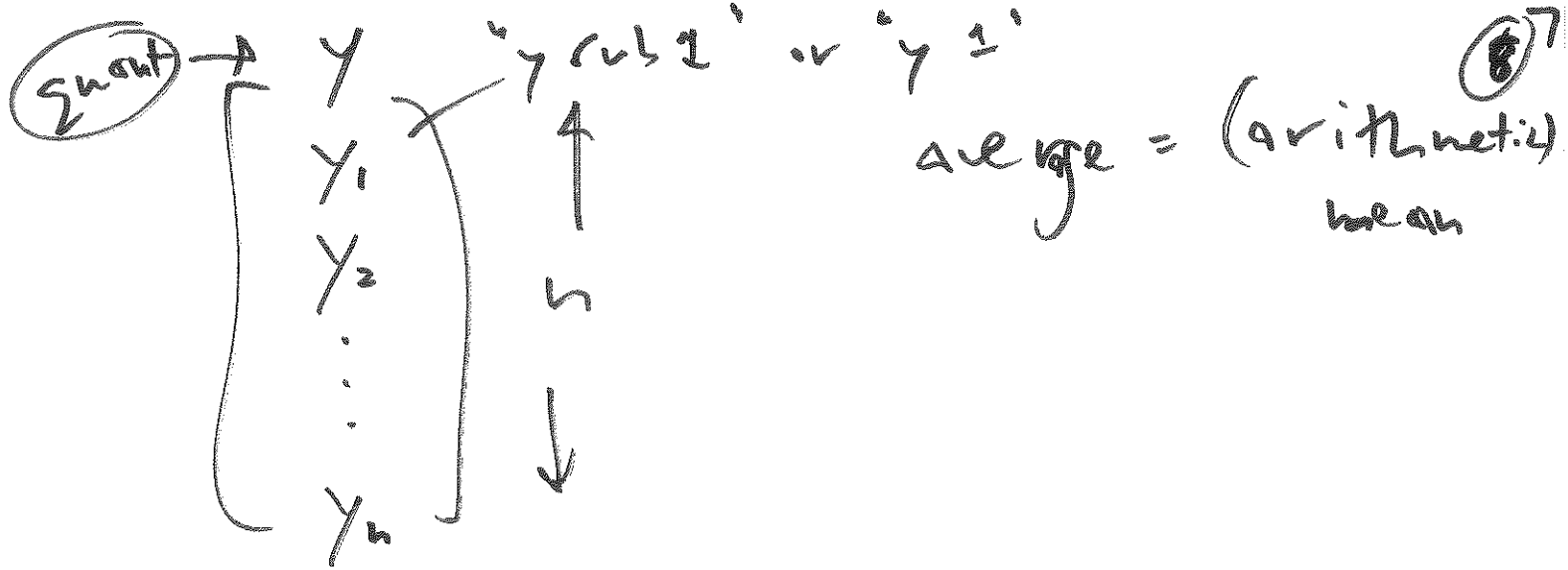
same shape & center



different spread



same center & spread, different shape



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

\bar{y} \rightarrow "y bar"

$= \frac{1}{n} \sum_{i=1}^n y_i$ \leftarrow summation notation

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

