Statistics

Lecture 5

Feb 19-8:47 AM

TI training:

1) clear the screen

[clear]

2) quit

[2nd] [Mode]

3) To clear all lists

[2nd] [+] [4: clear Alllists] [Enter]

4) To reset all lists.

[STAT] Edit

[5: Setup Editor] [Enter]

Feb 25-6:52 PM

Store the following in list 1:

23	25	18	30	32
20	25	19	35	40
24	28	18	30	42
45	50	15	29	38

STAT Edit

1:Edit

L1

23 enter

25 enter

⋮

38 enter

Let's quit & clear Screen

2nd Mode Clear

Feb 25-6:57 PM

Let's view L1:

2nd 1 Enter

{23 25 18 30 - - - 38}

Let's Sort L1, then view L1, and make Stemplot.

STAT Edit 2:SortA(2nd 1 Enter

2nd 1 Enter

{15 18 18 19 - - - 50}

1	5 8 8 9
2	0 3 4 5 5 8 9
3	0 0 2 5 8
4	0 2 5
5	0

Range = 50 - 15 = 35

$S \approx \frac{\text{Range}}{4} = \frac{35}{4} = 8.75$

Class width if we want

1) 3 classes

$CW = \frac{\text{Range}}{3} = \frac{35}{3} = 11.\overline{6}$ CW=12

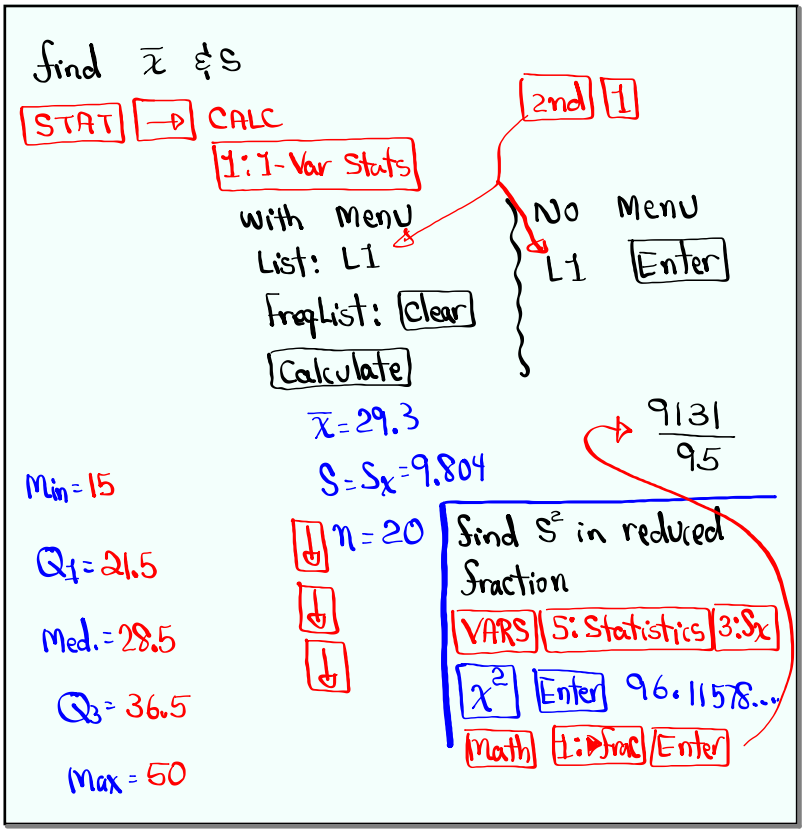
2) 5 classes

$CW = \frac{\text{Range}}{5} = \frac{35}{5} = 7$ CW=8

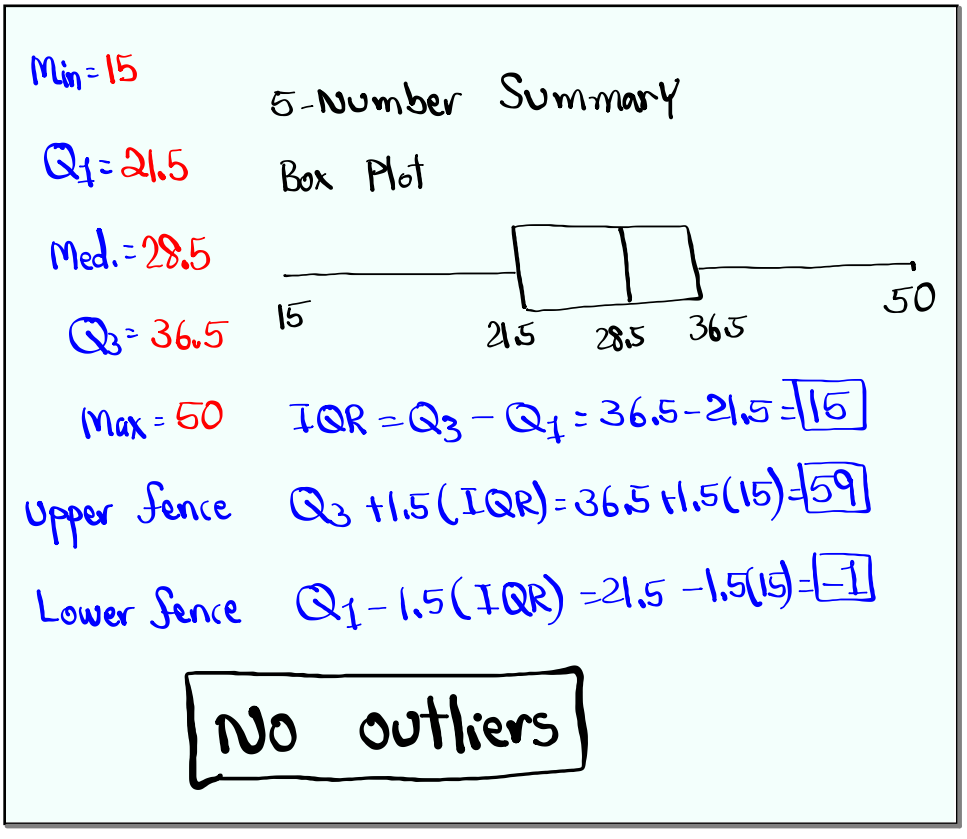
Mode: 18, 25, 30

Trimodal

Feb 25-7:03 PM



Feb 25-7:16 PM



Feb 25-7:25 PM

1	5 8 8 9
2	0 3 4 5 5 8 9
3	0 0 2 5 8
4	0 2 5
5	0

Find P_{10} $n=20$

$L = \frac{10}{100} \cdot 20 = 2$

$P_{10} = \frac{\text{2nd element} + \text{Next value}}{2}$

$= \frac{18+18}{2} = \boxed{18}$

Find P_{50}

$L = \frac{50}{100} \cdot 20 = 10$

$P_{50} = \frac{\text{10th value} + \text{Next value}}{2}$

Median

$= \frac{28+29}{2} = \boxed{28.5}$

Feb 25-7:31 PM

Find P_{72}

P_{72} = 15th element

$L = \frac{72}{100} \cdot 20 = 14.4$ $L = 15$ $= \boxed{35}$

2nd [1] [(] 15 [)] Enter

Find K Such that $P_K = 40$

Below

$K = \frac{B}{n} \cdot 100$, Round to whole %

80% | 20%

$P_{80} = 40$

$= \frac{16}{20} \cdot 100 = \boxed{80}$

$P_{80} = 40$

Feb 25-7:35 PM

How to find $\bar{x}$ & S of a group data:

Freq. table.

Class limits	Class MP	Class F
14 – 22	18	7
23 – 31	27	8
32 – 40	36	5

1) # classes = 3
2) CW = 9
3) $n = \sum f = 20$

Clear all lists: 2nd [+] 4:ClearAll lists Enter

Reset all lists: STAT Edit 5:SetupEditor Enter

Class MP → L1
Class F → L2

L1	L2
18	7
27	8
36	5

STAT → CALC 1:1-Var Stats
List: L1
FreqList: L2
Calculate

No Menu: L1 , L2 Enter

2nd [1] 7 2nd [2]

$S^2 = \frac{4779}{95}$

$\bar{x} = 26.1$
$S = S_x = 7.093$
$n = 20$

Find S^2 in reduced fraction
VARS 5: Statistics 3:S_x
x^2 Math 1:▶Frac Enter

Feb 25-7:41 PM

Working with ordered-pairs: (x, y)

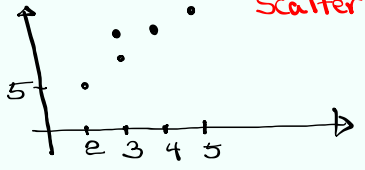
x	y
2	5
3	8
3	10
4	10
5	12

L1 L2

1) $n = 5$

2) Plot these points

Scatter Plot



Clear all lists

STAT → CALC
2: 2-Var Stats

$x \to L1$
$y \to L2$

$\sum x = 17$
$\sum x^2 = 63$
$n = 5$

$\sum y = 45$
$\sum y^2 = 433$
$\sum xy = 164$

With Menu:
Xlist: L1
Ylist: L2
FreqList: clear
Calculate

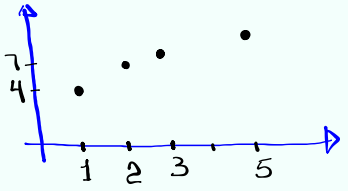
No Menu:
L1, L2
Enter

Feb 25-7:57 PM

Complete the chart below

x	y	x^2	y^2	xy
1	4	1	16	4
2	7	4	49	14
3	8	9	64	24
5	10	25	100	50

Scatter Plot



Clear all lists

$x \to L1$, $y \to L2$

STAT ▶ CALC

2:2-Var Stats

$\Sigma x = 11$ $\Sigma y = 29$

$\Sigma x^2 = 39$ $\Sigma y^2 = 229$

$n = 4$ $\Sigma xy = 92$ ✓

x list: L1

y list: L2

Freq List: clear

Calculate

if no menu,

L1 , L2 enter

1

Feb 25-8:08 PM

I randomly selected 24 students. Here are their ages:

25	28	32	18
20	30	40	50
19	28	35	25
17	52	45	33
20	24	30	34
18	28	48	35

Clear all lists.

Save this data in L1

Sort L1 , View L1,

Make Stem Plot

{17 18 18 19 ....

1	7 8 8 9
2	0 0 4 5 5 8 8
3	0 0 2 3 4 5 5
4	0 5 8
5	0 2

Feb 25-8:20 PM

Find $\bar{x}$ & s, Round to whole #.

STAT → CALC

1:1-Var Stats

List: L1

FreqList: clear

Calculate

NO Menu

L1 Enter

$\bar{x} = 30.583 \approx 31$

$S = S_x = 10.384 \approx 10$

$n = 24$

Min = 17

$Q_1 = 22$

Med = 29

$Q_3 = 35$

Max = 52

Find S^2 in reduced frac.

VARS 5:Statistics 3:S_x

x^2 Math 1:▶Frac Enter

$S^2 = \frac{14879}{138}$

Feb 25-8:27 PM

Complete the chart below

class limits	class MP	class F
10 – 19	14.5	4
20 – 29	24.5	10
30 – 39	34.5	6

+10, +10

$\bar{x} = 25.5$

$S = S_x = 7.182$

$S^2 = \frac{980}{19}$

Class MP → L1

Class F → L2

STAT → CALC

1:1-Var Stats

list: L1

freqlist: L2

Calculate

NO Menu

L1, L2 enter

Feb 25-8:34 PM

x	y
2	6
3	10
4	12
5	15

Clear all lists

$x \rightarrow L1$, $y \rightarrow L2$

STAT → CALC

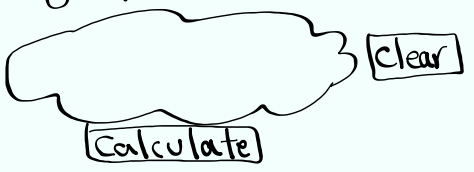
8:LinReg(a+bx)

$a = .6$

$b = 2.9$

$r^2 = .984$

$r = .992$



when r & r^2 are missing:

2nd 0 ↓ ↓ ↓ ↓ - - - ↓ ▶Diagnostic On Enter Enter

Feb 25-8:41 PM