

Statistics

Lecture 5



Feb 19-8:47 AM

Class Qz 2:

Given $n=10$, $\sum x=89$, $\sum x^2=895$

Find

1) \bar{x} , Round to whole # $\bar{x} = \frac{\sum x}{n} = \frac{89}{10} = 8.9 \approx 9$ ✓

2) s^2 , Reduced fraction $s^2 = \frac{n \sum x^2 - (\sum x)^2}{n(n-1)} = \frac{10 \cdot 895 - 89^2}{10(10-1)}$
 $= \frac{1029}{90} = \frac{343}{30}$ ✓

3) S , Round to whole # $S = \sqrt{s^2} = \sqrt{\frac{343}{30}} = 3.381 \approx 3$ ✓

By empirical rule

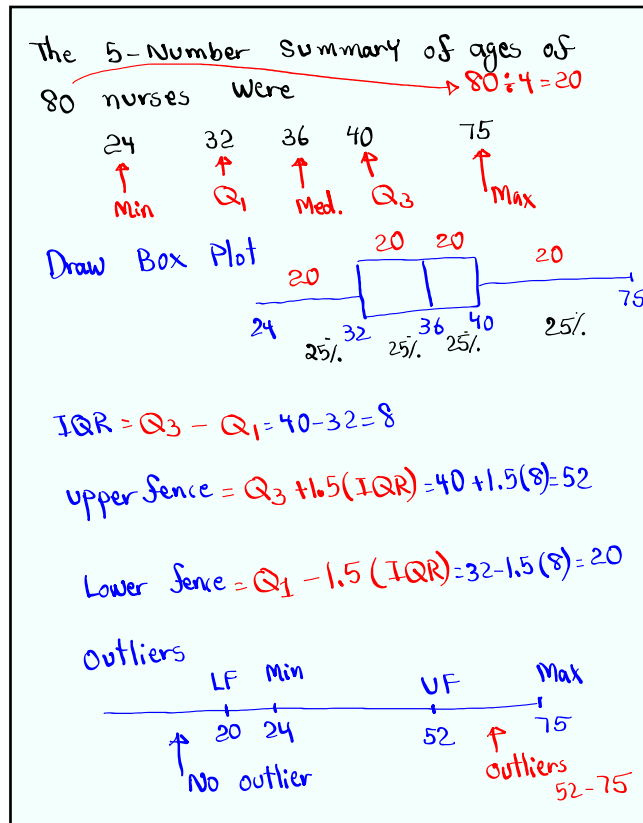
68% Range $\bar{x} \pm S = 9 \pm 3 \rightarrow 6 \text{ to } 12$

95% Range $\bar{x} \pm 2S = 9 \pm 2(3) \rightarrow 3 \text{ to } 15$

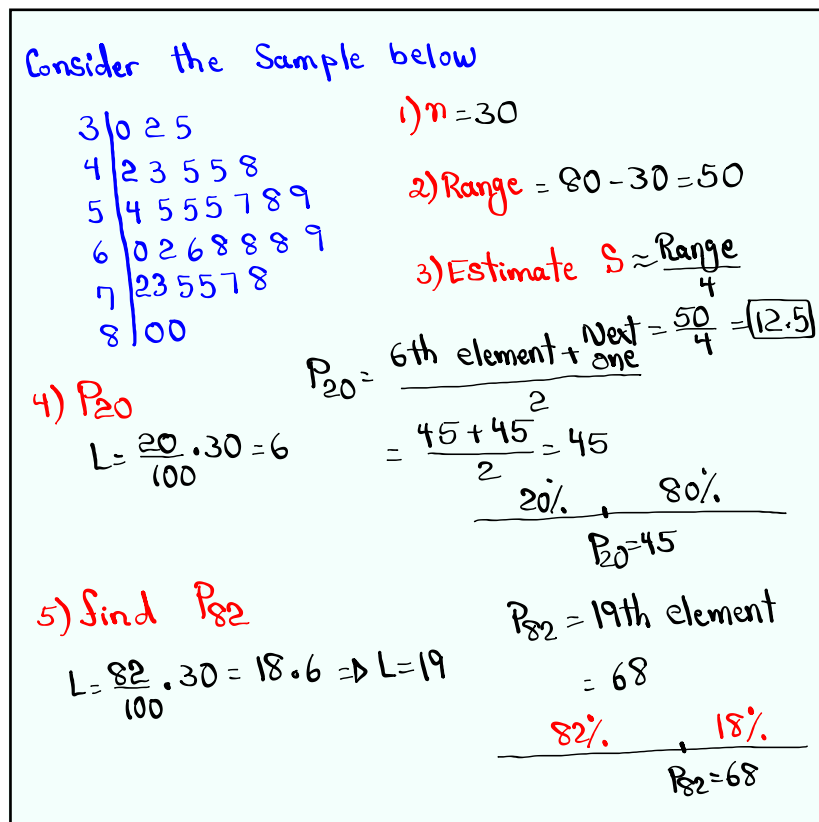
Usual Range

99.7% Range $\bar{x} \pm 3S = 9 \pm 3(3) \rightarrow 0 \text{ to } 18$

Mar 11-4:06 PM



Mar 16-1:51 PM



Mar 16-1:58 PM

3	0	2	5			
4	2	3	5	5	8	
5	4	5	5	7	8	9
6	0	2	6	8	8	9
7	2	3	5	5	7	8
8	1	0				

Find K such that $P_K = 75$.
 $K = \frac{B}{n} \cdot 100$ ↗ below
 Always round to whole%.

$K = \frac{24}{30} \cdot 100 = 80$

$\frac{80\% \quad + \quad 20\%}{P_{80} = 75} \quad P_{80} = 75$

Find K such that $P_K = 50$ ↗ below
 $K = \frac{B}{n} \cdot 100$
 $= \frac{8}{30} \cdot 100 = 26.\bar{6}$
 ≈ 27

$\frac{27\% \quad + \quad 73\%}{P_{27} = 50}$

Mar 16-2:07 PM

Introduction to TI:

- 1) To clear the Screen clear
- 2) To quit 2nd MODE
- 3) To clear all lists 2nd + 4:ClearAll lists
Enter
- 4) To reset all lists
STAT Edit Enter
5:Set up Editor

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How to store data in a list.

Store the following Sample
in a list:

15	20	10	8	12	
10	25	16	15	24	

STAT Edit

1:Edit

L1
15
20
10
⋮
24

Let's quit $\hat{=}$
clear screen

end MODE clear

To view the list

2nd 1 Enter

L1

{ 15 20 10 8 12 24 }

→ → →
← ← ←

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How to Sort a list:

STAT Edit

2:SortA()

2nd 1 Enter

L1

now let's view L1

2nd 1 Enter

L1

{ 8 10 10 12 15 25 }

→ → →
← ← ←

Mar 16-2:30 PM

How to find \bar{x} & S :

STAT → **CALC**
1: 1-Var Stats
 with Menu
 List: **L1**
 FreqList: **clear**
Calculate
 $\bar{x} = 15.5$
 $S = S_x = 5.893$

Min = 8
 Q₁ = 10
 Med = 15
 Q₃ = 20
 Max = 25

5-Number Summary
 $n = 10$ what about S^2 ?
VAR **5: Statistics**
3: S_x **X²** **Enter**
 $S^2 = 34.72$
 Convert to a reduced fraction
Math **1: Frac**
Enter

$S^2 = \frac{625}{18}$

Download
 G. Calculator into Your Smart device.

Mar 16-2:44 PM

I randomly selected 15 students.
 Here are their ages:

25	18	30	20	28
19	24	25	32	40
33	28	20	18	35

Clear all lists
2nd **+** **4: clear All lists**
Enter

Store in L1
STAT **Edit**
1: Edit

quit & clear Screen
2nd **MODE** **clear**

	L1
	25
	18
↑	30
↑	⋮
↑	35

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View L1

2nd **1** **Enter**

{ 25 18 30 20 ... 35 }

Sort L1, then view it and make stemPlot

STAT **Edit** **2nd** **1** **Enter**

2:SortA()

2nd **1** **enter**

{ 18 18 19 20 ... }

1	889
2	0045588
3	0235
4	0

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Find \bar{x} & S

STAT **→** **CALC**

1:1-Var Stats

with Menu
List: L1
Freq List: **clear**

Calculate

$\bar{x} = 26.3$
 $S = S_x = 6.758$
 $n = 15$

Min = 18
 $Q_1 = 20$
Med. = 25
 $Q_3 = 32$
Max = 40

2nd **1**

No Menu
L1 **Enter**

Find S^2

VARS **5: Statistics**

3: Sx **x^2** **Enter**

$S^2 = 45.6$

Convert to a reduced fraction

Math **1: $\frac{\square}{\square}$** **Enter**

$$S^2 = \frac{137}{3}$$

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Complete the table below

class limits	class MP	class F
12 - 20	16	5
21 - 29	25	9
30 - 38	34	6

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

clear all lists
 [2nd] [+] [tc:clearAllList] [Enter]

class MP \rightarrow L1
 class F \rightarrow L2

L1	L2
16	5
25	9
34	6

[STAT] [2] [CALC]
 1: 1-Var Stats
 with Menu
 List: L1
 FreqList: L2
 [Calculate]
 [2nd] [1]
 no Menu
 L1, L2 [enter]
 [7]
 [2nd] [2]

$\bar{x} = 25.45$
 $S = S_x = 6.832$
 $n = 20$
 find S^2 in reduced fraction

[VARS] [5: Statistics] [3: Sx] [x²] [Math] [1: Frac] [Enter]
 $S^2 = \frac{17739}{380}$

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Complete the chart below

4 classes

class BNDRS	class MP	class F	Cum. F
17.5 - 27.5	22.5	3	3
27.5 - 37.5	32.5	7	10
37.5 - 47.5	42.5	10	20
47.5 - 57.5	52.5	5	25

CW = 10

$n = 25$

clear all lists. class MP \rightarrow L1, class F \rightarrow L2

[STAT] [2] [CALC]
 1: 1-Var Stats
 List: L1
 FreqList: L2
 [Calculate]

$\bar{x} = 39.3$
 $S = S_x = 9.452$
 $n = 25$
 $S^2 = \frac{268}{3}$

Mar 16-3:47 PM

Class QZ 3

Consider the Sample below

25 32 38 40 18

27 35 29 30 20

Find

$$1) \bar{x} = 29.4 \approx \boxed{29}$$

$$2) S = 7.214 \approx \boxed{7}$$

$$3) S^2 = \frac{2342}{45}$$

} Round to
whole #

} Reduced
Fraction

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