

Statistics

Spring 2023

Lecture 7



Feb 19-8:47 AM

SG 5-8

- 1) Clear the Screen: `Clear`
- 2) How to quit: `2nd MODE`
- 3) How to clear all lists: `2nd + 4: clear all lists`
`Enter`
- 4) How to reset all lists:
`STAT` `Edit`
`5: Set up Editor` `Enter`
- 5) How to store data in a list.

<code>STAT</code>	<code>Edit</code>			
	<code>1: Edit</code>			
15	18	10	8	
20	25	19	5	
32	28			

L1	
15	<code>Enter</code>
18	<code>Enter</code>
⋮	
28	<code>Enter</code>

Now quit
`2nd MODE`
Clear the Screen
`Clear`

Feb 15-7:16 AM

How do we view the list:

To view **L1**

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

{ 15 18 10 8 20 → → → 32 28 }

How to Sort a list:

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

2: SortA

Let's view **L1** after the Sorting Process

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

{ 5 8 10 15 18 ... 28 32 }

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Now let's find \bar{x} , S , and n .

STAT **→** **CALC**

1: 1-Var Stats

with Menu
List: **L1**
FreqList: blank
Calculate

No Menu
1-Var Stats
L1 **Enter**

$\bar{x} = 18$
 $S = S_x = 8.769$
 $n = 10$

↓
↓
↓

Min = 5
Q1 = 10
Med = 18.5
Q3 = 25
Max = 32

5-Number Summary

Feb 15-7:32 AM

\bar{x} → Sample Mean ✓
 S → Sample Standard deviation ✓
 n → Sample Size ✓
 S^2 → Sample Variance

How to find S^2 using TI:

VARs 5: Statistics 3: S_x^2 χ^2 Enter

$$S^2 = 76.8$$

How to convert this answer to a reduced fraction:

MATH 1: ▸ Frac Enter

$$S^2 = \frac{692}{9}$$

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Complete the following table:

class limits	class MP	class F	Cum. F
10 - 18	14	3	3
19 - 27	23	7	10
28 - 36	32	10	20
37 - 45	41	5	25

4 classes, CW=9, $n=25$ $n=\sum f$

How to find \bar{x} , S , and n for grouped data:

clear all lists → 2nd + 4: Clear All Lists Enter

Reset all lists → STAT Edit
 5: Set up Editor Enter

Store class MP → L1
 class F → L2

L1	L2
14	3
23	7
32	10
41	5

STAT → CALC
 1: 1-Var Stats

with Menu No Menu
 List: L1 1-Var Stats
 Freq List: L2 L1, L2 Enter
 Calculate 2nd 1 7 2nd 2 $n=25$

$$\bar{x} = 29.12$$

$$S = 8.506$$

$$n = 25$$

Feb 15-7:44 AM

Find S^2 in reduced fraction:

VARS 5: Statistics 3: Sx χ^2 Enter

$S^2 = 72.36$

Math 1: Frac Enter

$S^2 = \frac{1809}{25}$

Working with 5-Number Summary:

Min, Q_1 , Med., Q_3 , Max

Draw Box Plot

$IQR = Q_3 - Q_1$ outliers outliers
 Inter-Quartile-Range LF UF

Upper Fence = $Q_3 + 1.5(IQR)$

Lower Fence = $Q_1 - 1.5(IQR)$

Feb 15-8:03 AM

I randomly selected 120 exams, the 5-Number Summary of their scores were

35, 65, 78, 81, 100

Min ↑ Med. ↑ Max
 Q_1 Q_3

$120 \div 4 = 30$
 at most 81
 at least 65

Box Plot

$IQR = Q_3 - Q_1 = 81 - 65 = 16$
 Upper Fence = $Q_3 + 1.5(IQR) = 81 + 1.5(16) = 105$
 Lower Fence = $Q_1 - 1.5(IQR) = 65 - 1.5(16) = 41$

outlier outlier
~~35~~ ↑ 41 105 None
 outliers

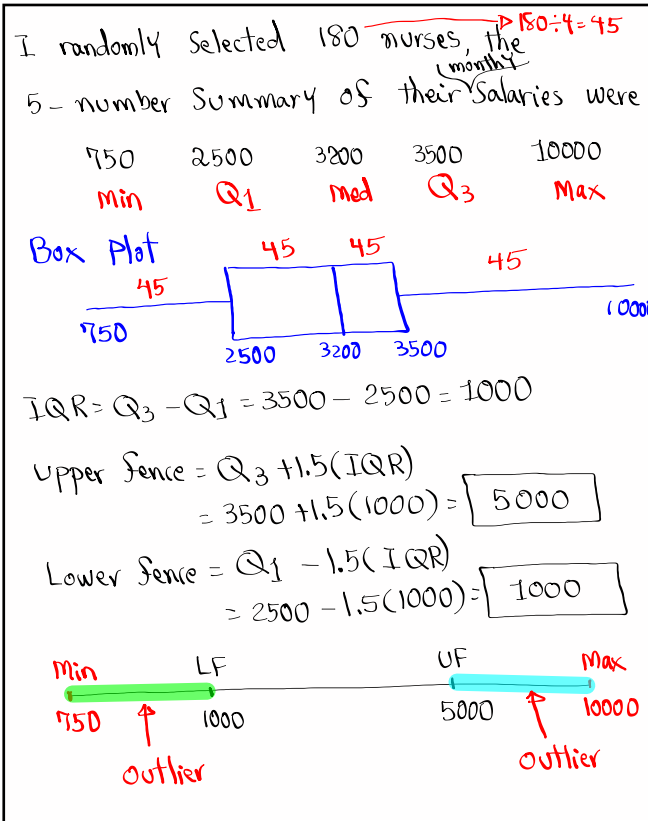
How many people scored at least 65?

$30 + 30 + 30 = 90$
 or
 $75\% (120) = 90$

What % of scores were at most 81?

$25\% + 25\% + 25\% = 75\%$
 90 is what % of $120 \rightarrow 75\%$

Feb 15-8:11 AM



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