

Statistics

Spring 2023

Lecture 6



Feb 19-8:47 AM

Consider the Sample below:

2 3 3 4 5
5 5 8 8 12

1) $n = 10$

2) Range = Max - Min = $12 - 2 = 10$

3) Midrange = $\frac{\text{Max} + \text{Min}}{2} = \frac{12 + 2}{2} = 7$

4) Mode = 5

5) $\sum x = 2 + 3 + 3 + 4 + 5 + 5 + 5 + 8 + 8 + 12 = 55$

6) $\sum x^2 = 2^2 + 3^2 + 3^2 + 4^2 + 5^2 + 5^2 + 5^2 + 8^2 + 8^2 + 12^2 = 385$

7) $\bar{x} = \frac{\sum x}{n} = \frac{55}{10} = 5.5$ Mean

8) $s^2 = \frac{n \sum x^2 - (\sum x)^2}{n(n-1)} = \frac{10 \cdot 385 - 55^2}{10(10-1)} = \frac{825}{90} = 9.1\bar{6} \approx 9.167$
Variance

9) $s = \sqrt{s^2} = \sqrt{9.167} \approx 3.028$

Feb 14-7:18 AM

Some TI instructions:

- 1) To clear the Screen: clear
- 2) To quit: 2nd MODE
- 3) To clear all lists: 2nd + 4:Clear All Lists Enter
- 4) To reset all lists: STAT Edit Enter
5:Setup Editor

Let's clear the Screen.

clear

Feb 14-7:28 AM

How to store data in a list:

Store the following Sample in L1 List 1

8 5 3 10
12 8 10 2

STAT Edit
1:Edit

L1	8	enter
	5	enter
	⋮	
	2	enter

Let's quit

2nd MODE

Let's clear the Screen

clear

Feb 14-7:35 AM

How to view the contents of a list:

To view what is in L1

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

{ 8 5 3 ... 2 }

To Sort a list

STAT **Edit** **2: Sort AC** **end** **1** **Enter**

Let's view L1 again

2nd **1** **Enter** { 2 3 5 ... 12 }

Let's quit and clear the screen

2nd **MODE** **clear**

Feb 14-7:42 AM

How to find $\sum x$ & $\sum x^2$ using TI:

STAT **→** **CALC** **1: 1-Var Stats** **end** **1**

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

No Menu
1-Var Stats L1
Enter

on the Same Screen

$\sum x = 58$
 $\sum x^2 = 510$

$\bar{x} = 7.25$ Mean
 $S = S_x = 3.576$ Standard deviation
 $n = 8$ Sample Size

Feb 14-7:51 AM

How to find S^2 :

VARs **5: Statistics** **3: S_x** **x^2** **Enter**

$$S^2 = 12.78571429$$

To convert this answer to a reduced fraction

MATH **1: ▸ Frac** **Enter** $S^2 = \frac{179}{14}$

Clear all lists:

2nd **+** **4: Clear All Lists** **Enter**

Clear the Screen

clear

Feb 14-7:59 AM

I randomly selected 10 students, and here are their ages:

25 32 18 20 40

28 19 35 45 24

Let's store this data in L1

STAT **Edit**

1: Edit

L1	
25	enter
32	enter
⋮	
24	enter

Let's quit

2nd **MODE**

Feb 14-8:05 AM

Let's Sort L1:

STAT **Edit** **2nd** **1** **Enter**
2: SortA

Let's view L1:

2nd **1** **Enter** { 18 19 20 24 ... 45 }
→ **→** **→**

Let's find

STAT **→** **calc**
1: 1-Var Stats

$\bar{x} = 28.6$
 $\sum x = 286$
 $\sum x^2 = 8944$
 $S_x = 9.216$

with Menu } No Menu
 List: L1 } 1-Var Stats
 Freq-list: Blank } L1 **Enter**
Calculate } **2nd** **1**

↓ $n = 10$
↓ Min = 18
↓ $Q_1 = 20$
↓ Med. = 26.5
↓ $Q_3 = 35$
 Max = 45

5-Number Summary

Feb 14-8:09 AM

Let's find S^2 in reduced fraction:

VARS **5: Statistics** **3: Sx** **x^2** **Enter**

$S^2 = 84.9\bar{3}$

MATH **1: Frac** **Enter** $S^2 = \frac{1274}{15}$

Let's clear the Screen: **clear**

Let's clear all lists: **2nd** **+** **4: clear All lists**
Enter

Let's reset all lists:

STAT **Edit** **Enter**
5: Set Up Editor

Feb 14-8:23 AM