2.7 Measures of Dispersion: Std Deviation

Standard Deviation

Some measures tell us how data points are similar to each other:

Mean median mode

Some measures tell us how data points are spread out:

range IQR _____

Today, we will learn another measure that brings these two ideas together. The standard deviation is a measure of how close or far away the data points are *from the mean.*

Small standard deviations indicate that the data in general is close the mean. This might indicate that the data is stable or reliable. There is little variation.

Large standard deviations tell us the data is far from the mean. This might indicate the data is volatile or unreliable. There is a lot of variation.

The symbol for standard deviation is σ.

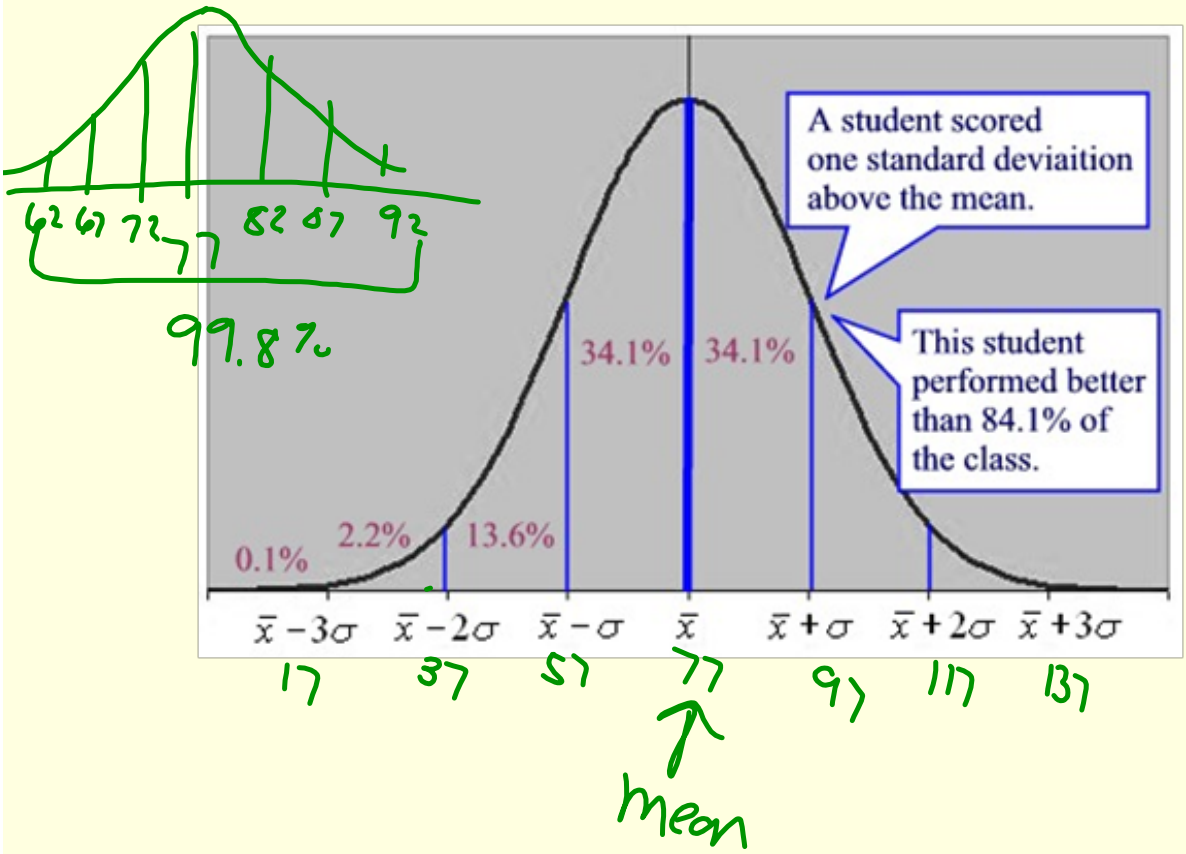
Scores on the last quiz

42	50	50	50	58	58	67	67	75	83
83	83	83	92	100	100	100	100	100	100

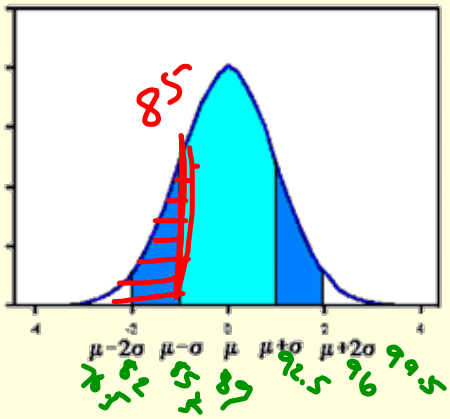
Use your calculator to find the mean and standard deviation of this data.

$\bar{x} =$ 77.05

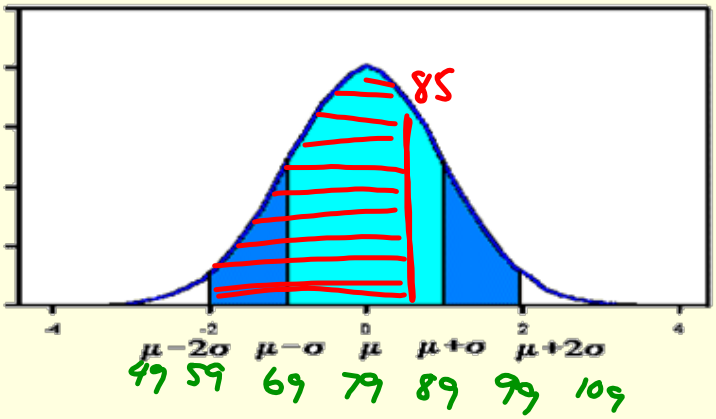
$\sigma =$ 19.85


62 67 72 77 82 87 92
99.8%
A student scored one standard deviaition above the mean.
This student performed better than 84.1% of the class.
34.1%
34.1%
13.6%
2.2%
0.1%
$\bar{x}-3\sigma$ $\bar{x}-2\sigma$ $\bar{x}-\sigma$ $\bar{x}$ $\bar{x}+\sigma$ $\bar{x}+2\sigma$ $\bar{x}+3\sigma$
17 37 57 77 97 117 137
mean

Probability Test



Functions Test



A student scored an 85 on both tests.
On which one did she score higher in relation to the mean?

Functions Test

μ

Month	Selecta Disc	Discount Discs
January	100	80
February	30	1
March	30	70
April	30	2
May	21	70
June	23	1
July	21	1
August	21	70
September	24	3
October	21	70
November	30	2
December	21	2

Selecta Disc's mean is 31.

Selecta Disc's standard deviation is 21.2.

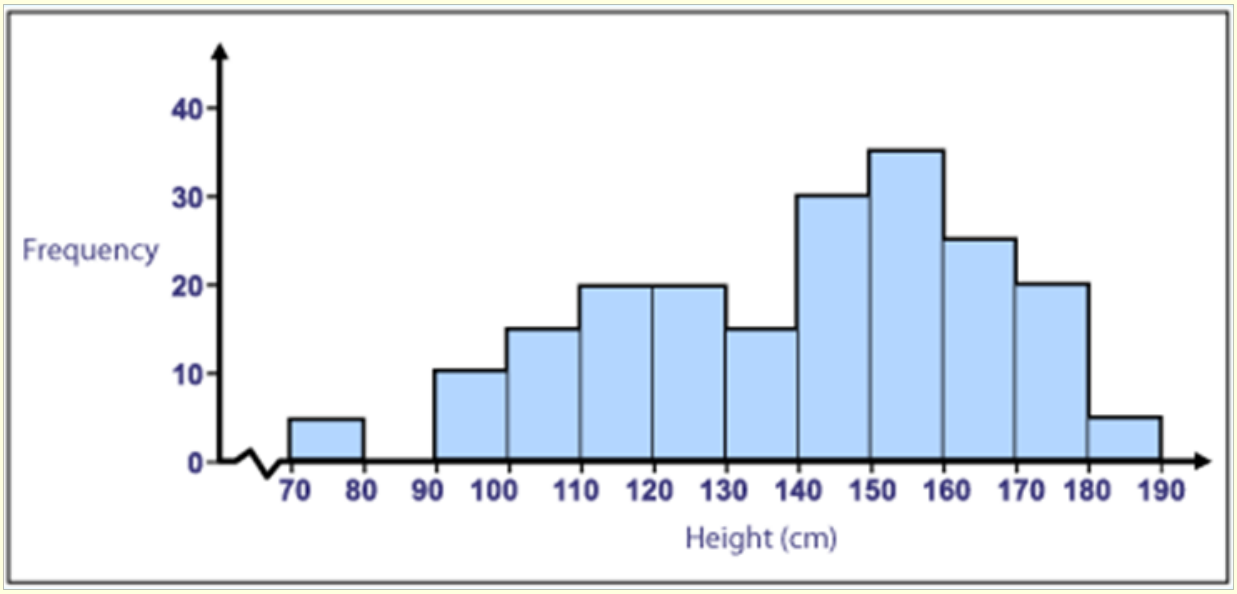
Discount Discs' mean is 31.

Discount Discs' standard deviation is 34.8.

The symbol for mean is $\bar{x}$, μ.

The symbol for standard deviation is σ

Which club would you join, and why?


Frequency
40
30
20
10
0
70
80
90
100
110
120
130
140
150
160
170
180
190
Height (cm)

L1	L2
75	5
85	0
95	10
105	15
115	20
125	20
135	15
145	30
155	35
165	25
175	20
185	5

The mean of the data is:

140.25

The median of the data is:

145

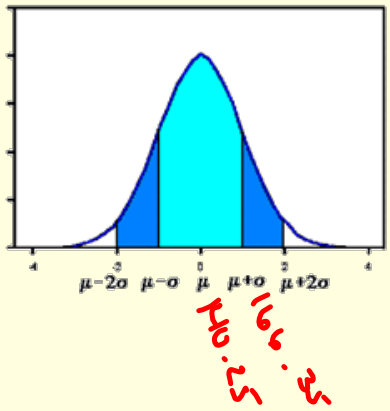
The mode of the data is:

155 (150-160)

The standard deviation of the data is:

26.1

Label the normal curve below:



Homework:

WS IB Practice A/B/C and pages 76-78 (1-10 all)