Measures of Variation - Part 2

IQR & Box & Whisker Plots

Nancy's Bowling Scores

12	5
13	7 8 8
14	0 2 2 4 | 8 9
15	1 3 3 4 7 8
16	(2) 5 6 6 7
17	0 1 2 2 | 2 9
18	5 6 6
19	0 2
20	
21	9

12|5 = 125
33 Scores

Interquartile Range

$= Q_3 - Q_1$

IQR

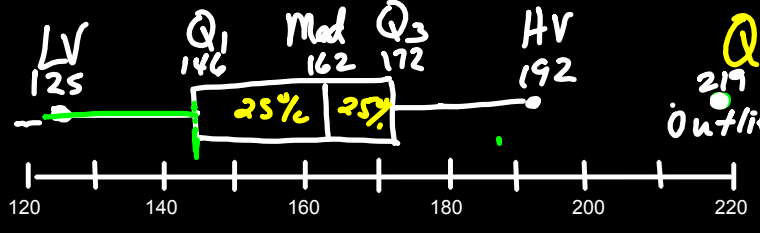
Median $= \frac{33}{2} = 16.5 \approx 17^{th}$
$= 162$

Quartiles $= \frac{16}{2} = 8^{th} \& 9^{th}$

$Q_1 = \frac{144+148}{2} = 146$

$Q_3 = \frac{172+172}{2} = 172$

$IQR = 172 - 146$
$= 26$



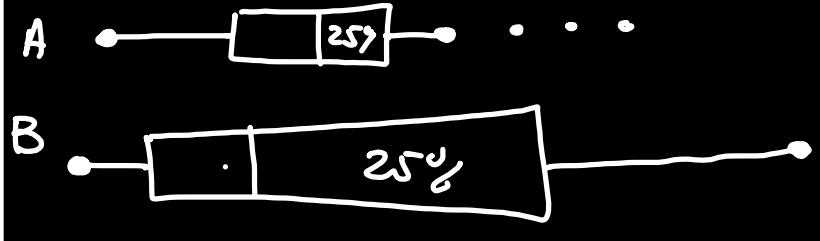
219
Outlier

Outliers

1) IQR * 1.5 = #
2) lower boundary = Q_1 - #
3) upper boundary = Q_3 + #

1) 26 * 1.5 = 39
2) 146 - 39 = 107 boundary
3) 172 + 39 = 211

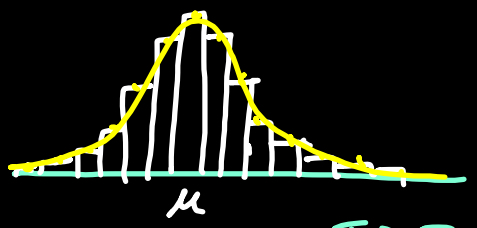
Outliers: 219

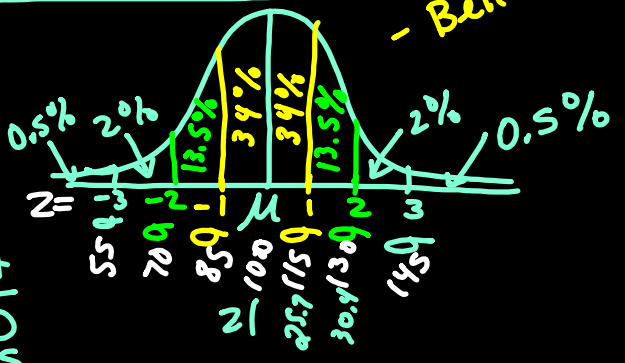


March 1, 2023

Normal Distribution

- Normal Curve
- Bell Curve



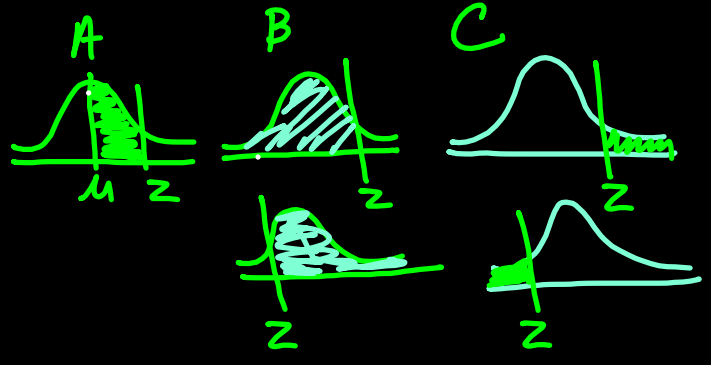


IQ Test

$\mu = 100$

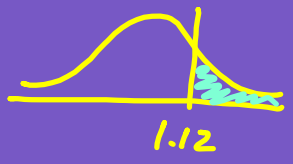
$\sigma = 15$

z



z = # of standard deviations from the mean

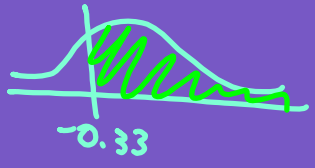
1) Find % above $z = 1.12$



Col. C

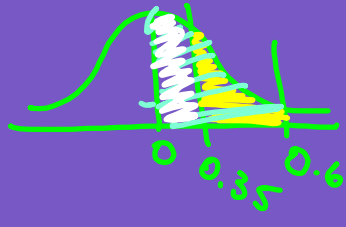
0.1314

$z = -0.33$



Col. B

Find % between $z = 0.35$ & $z = 0.67$



$z = 0.67$ 0.2486 Col. A

$z = 0.35$ −0.1368 col A

0.1118

The area (%) below z is 0.2578

What is the z-score 0.8600

$z = -0.65$