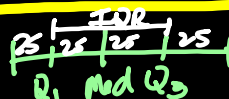


MEASURES OF VARIATION - PART 2

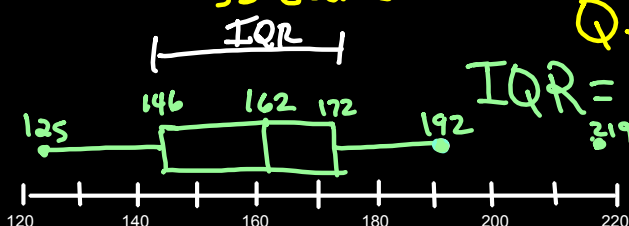
IQR + Box + Whisker Plots



Nancy's Bowling Scores

| | |
|----|-------------|
| 12 | 5 |
| 13 | 7 8 8 |
| 14 | 0 2 2 1 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



IQR = Interquartile Range

$$= Q_3 - Q_1$$

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

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

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

$$Q_3 = 172$$

$$\text{IQR} = 172 - 146 = 26$$

Outliers

$$1) \text{IQR} \times 1.5 = \#$$

$$26 \times 1.5 = 39$$

2) Lower boundary

$$Q_1 - \# = 146 - 39 = 107$$

3) Upper boundary

$$Q_3 + \# = 172 + 39 = 211$$

Outliers: 219

$$2016 - 2006.5 = 9.5$$

$$9.5 \times 1.5 = 14.25$$

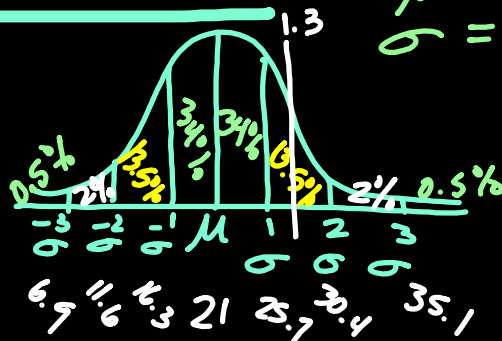
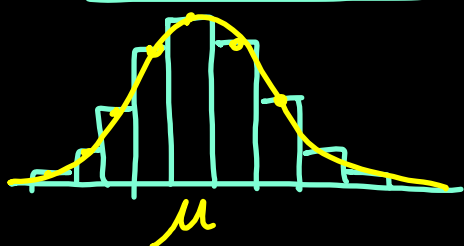
$$\text{Lower boundary: } 2006.5 - 14.25 = 1992.25$$

$$\text{Upper : } 2016 + 14.25 = 2030.25$$

NORMAL DISTRIBUTION

$$\mu = 21$$

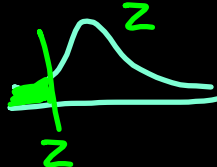
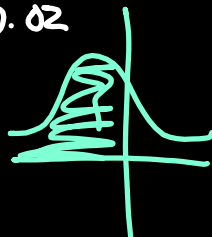
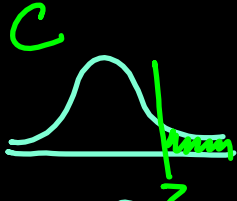
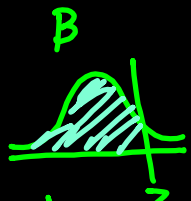
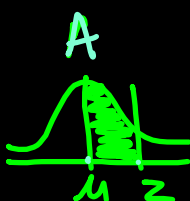
$$\sigma = 4.7$$



Larger Portion

z

0.00
0.01
0.02

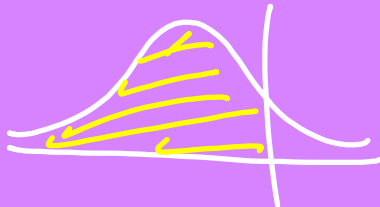


$z = \#$ of standard deviations from the mean

Percentile = % to the left on the normal curve

Normal

below $Z = 2.3$



0.9893



$Z = 1.65$

Col. C
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