

## 3-4 Topics

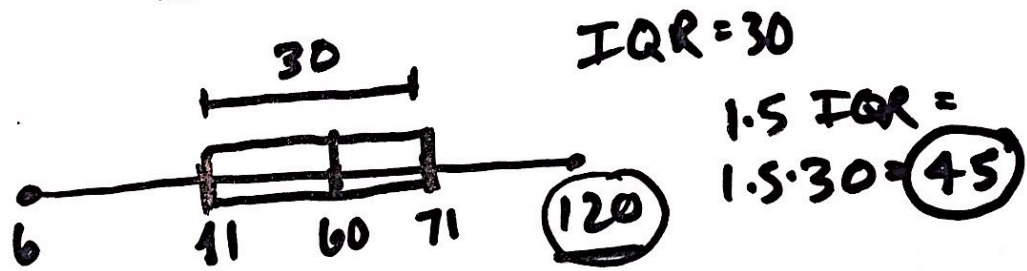
- 5 number summary
- Percentiles
- Z-score

# 5 number Summary

6  
28.5  
40  
40  
42  
48  
57  
60  
60  
65  
67  
70  
72  
72  
93<sup>e</sup>  
120

min - 6  
Q<sub>1</sub> - 41  
Q<sub>2</sub> - 60  
Q<sub>3</sub> - 71  
Max - 120

## Box + Whisker plot



Outlier?

6  
 28.5  
 40  
 40  
 42<sup>41</sup>  
 48  
 57  
 60  
 60  
 65  
 67  
 70  
 72  
 72  
 93<sup>1</sup>  
 120

## Percentile

P<sub>3</sub> my Daughter 3<sup>rd</sup> percentile height  
 P<sub>97</sub> your ACT score 97<sup>th</sup> percentile

### Percentile to Data Value

$$P_{60} = \frac{60}{100} (16) = 9.6 \rightarrow 10^{\text{th}} \quad P_{60} = 65$$

$$P_{25} = \frac{25}{100} (16) = 4 \quad P_{25} = 41$$

### Finding a Percentile

$$P_? = 93$$

$$\frac{\# \text{ of samples less than } x}{\# \text{ of samples}}$$

$$\frac{14}{16} = 88\%$$

6  
28.5  
40  
40  
42  
48  
57  
60  
60  
65  
67  
70  
72  
72  
93  
120

## Z-Score

$$\bar{x} = 58.8$$

$$s = 26.2$$

$$+1SD = 85$$

$$-1SD = 32.6$$

$$+2SD = 111.2$$

$$-2SD = 6.4$$

$$z = \frac{x - \bar{x}}{s}$$

$$z = \frac{48 - 58.8}{26.2} = -0.41$$

$$z = \frac{93 - 58.8}{26.2} = 1.31$$