Measures of Central Tendency

Obs $Y_1 = 5,\ Y_2 = 2,\ Y_3 = 13,\ Y_4 = 11,\ Y_5 = 18,\ Y_6 = 22$

$$\bar{Y} = \frac{\sum_{i=1}^{N} Y_i}{n} = \frac{5+2+13+11+18+22}{6} = \frac{71}{6} = \hat{Y} \text{ or } \boxed{\bar{Y}} = \sim 11.8$$

$$\hat{\sigma}_Y = \sqrt{\frac{\sum_{i=1}^{n}(Y_i - \bar{Y})^2}{N-1}} = \sqrt{\frac{(5-11.8)^2 + (2-11.8)^2 + (13-11.8)^2 + (11-11.8)^2 + (18-11.8)^2 + (22-11.8)^2}{6-1}}$$

$$= \sqrt{\frac{(-6.8)^2 + (-9.8)^2 + (1.2)^2 + (-0.8)^2 + (6.2)^2 + (10.2)^2}{5}}$$

$$\Rightarrow \sqrt{\frac{46.24 + 96.04 + 1.44 + 0.64 + 38.44 + 104.04}{5}}$$

$$\hat{\sigma}_Y = \sqrt{\frac{286.84}{5}} = \sqrt{57.36} = \boxed{7.5741}$$

$\bar{Y} = 11.8$

$\hat{\sigma}_Y = 7.57$