Population

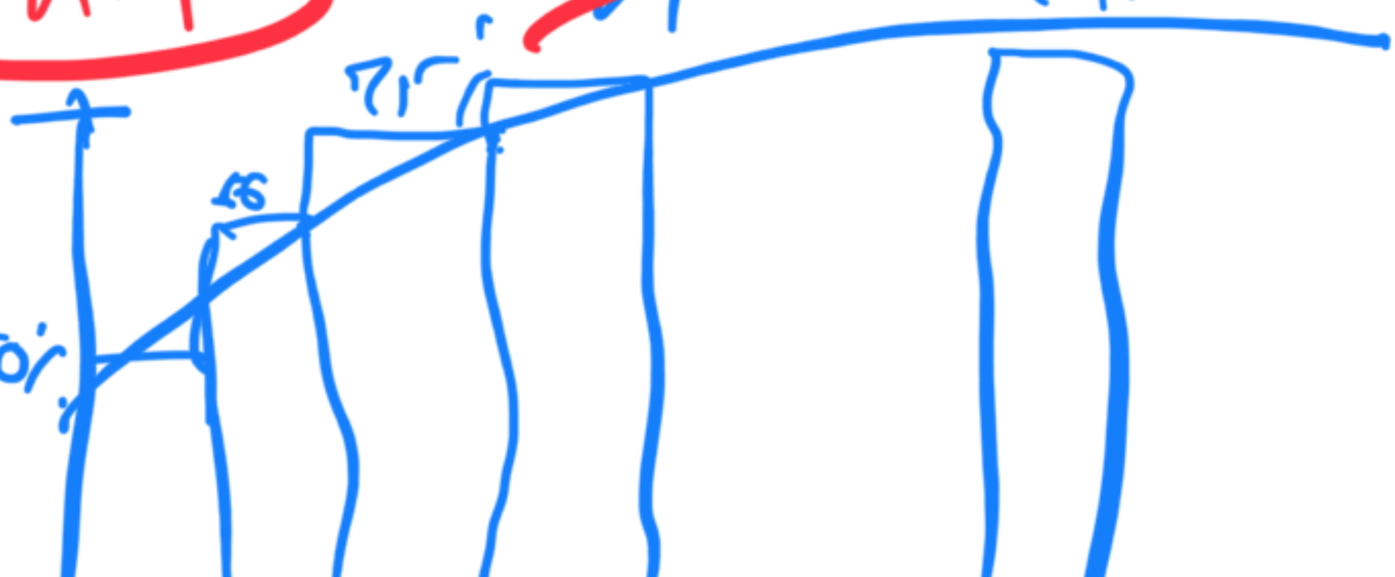
σ^2 = True variance

S^2

S variance $= \dfrac{\sum_{i=1}^{n}(x_i-\bar{x})}{\cancel{n}\ \ n-1} \rightarrow \dfrac{\cancel{n-1}}{\cancel{n}}\,\sigma^2\ \dfrac{\cancel{k}}{\cancel{n-1}}$

$\cancel{n}$

$\dfrac{\text{S vari}}{\text{pop vari.}}$



Sample size =

$$A = \begin{vmatrix} -6 & 3 \\ 4 & 5 \end{vmatrix}, \quad \det(A - \lambda I) = 0$$

$$\left| \begin{vmatrix} -6 & 3 \\ 4 & 5 \end{vmatrix} - \lambda \begin{vmatrix} 1 & 0 \\ 0 & 1 \end{vmatrix} \right| = 0$$

$$\left| \begin{vmatrix} -6 & 3 \\ 4 & 5 \end{vmatrix} - \begin{vmatrix} \lambda & 0 \\ 0 & \lambda \end{vmatrix} \right| = 0$$

$$\begin{vmatrix} -6-\lambda & 3 \\ 4 & 5-\lambda \end{vmatrix} = 0$$

$$\det\left(\begin{vmatrix} a & b \\ \end{vmatrix}\right)$$

$$ad - bc = (-6-\lambda)(5-\lambda) - 3\times 4 = 0$$

$$= \lambda^2 + \lambda - 42 = 0$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad \lambda = -7, 6$$

(1) $\lambda = 6$

$$\underbrace{\begin{vmatrix} -6 & 3 \\ 4 & 5 \end{vmatrix} \begin{vmatrix} x \\ y \end{vmatrix} = 6 \begin{pmatrix} x \\ y \end{pmatrix}} \quad \begin{vmatrix} 1 \\ -4 \end{vmatrix}$$

$$-6x + 3y = 6x$$

$$4x + 5y = 6y$$

eisenvector $\lambda = 6$

$$-12x + 3y = 0$$

$$12x + 3y = 0$$

$$4x - y = 0$$

$$y = 4x$$

$|4|$