

Wahrscheinliche Standardabweichung.

$x_1, x_2, \dots, x_n$  - unabhängige Zufallsvariable (produktiv)

0 Mittelwert

$$\textcircled{1} X \sim N(\mu, \sigma) \Rightarrow \bar{X}_n \sim N\left(\mu, \frac{\sigma}{\sqrt{n}}\right)$$

$$\textcircled{2} Y_n = \frac{x_n}{n} \Rightarrow Y_n \sim N\left(\mu, \sqrt{\frac{\sigma^2}{n}}\right)$$

m - Beobachtungen

(Kapazität)

p - prod. Schwere  
Fehler proba.

$$\textcircled{3} Z_n = x_1 + x_2 + \dots + x_n$$

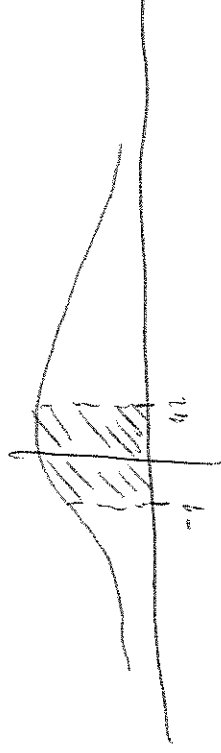
$$X_i \sim N(\mu, \sigma) \Rightarrow Z_n \sim N(n \cdot \mu, \sigma \sqrt{n})$$

$$Z_{100} \sim N(80, 5) \quad n = 100$$

$$\bar{X}_{100} \sim N(80, 5)$$

$$P(0.5 \leq \bar{X} \leq 86) = P\left(\frac{75-80}{5} \leq Z \leq \frac{86-80}{5}\right) = P(-1 \leq Z \leq 1.2)$$

$$= \Phi(1) + \Phi(1.2) = 0.7443 + 0.8849 = 0.9262$$



29-32 W. Produktivität