Estimated True Score $\hat{T} = r_{XX}(X - \mu) + \mu$

Observed Score $X \sim \mathcal{N}(\mu = 100, \sigma = 15)$

Reliability Coefficient $r_{XX} = \{.80, .85, .90, .95, .98\}$

Probability true score T is less than threshold τ

Threshold $\tau = 70$

$$P(T \leq \tau) = \Phi\left(\frac{\tau - \hat{T}}{\sigma_{T-\hat{T}}}\right)$$

Standard Normal Cumulative Distribution Function $\Phi()$

Standard Error of the Estimate

$$\sigma_{T-\hat{T}} = \sigma\sqrt{r_{XX} - r_{XX}^2}$$