

Probability Density Function

$$\text{PDF} := \frac{1}{\sqrt{2 \cdot \pi \cdot \sigma}} \cdot e^{-\frac{1}{2} \left(\frac{x - \text{xavg}}{\sigma} \right)^2}$$

Cumulative distribution function

$$\text{CDF} := \frac{1}{2} \cdot \text{erf} \left(\frac{1}{2} \cdot \frac{\sqrt{2}}{\sigma} \cdot x - \frac{1}{2} \cdot \frac{\text{xavg}}{\sigma} \cdot \sqrt{2} \right)$$

Example on Page 133 of textbook

$$\text{xavg} := 3.204$$

$$x := \ln(9.81)$$

$$x = 2.283$$

$$\sigma := 0.57$$

$$Z := \frac{x - \text{xavg}}{\sigma} \quad Z = -1.615$$

$$C := \text{pnorm}(x, \text{xavg}, \sigma)$$

$$D := 1 - C$$

$$D = 0.947$$

Example 4.1 - Page 112 -113 of textbook

$$\text{xavg} := \log(42.7)$$

$$x := \log(100)$$

$$\sigma := 0.28$$

$$Z := \frac{x - \text{xavg}}{\sigma} \quad Z = 1.32$$

$$C := \text{pnorm}(x, \text{xavg}, \sigma)$$

$$D := 1 - C$$

$$D = 0.093$$