

2) TRDNOST LESA X - LOGNORMALNA

$$\left. \begin{aligned} m_x &= 45 \text{ MPa} \\ \sigma_x^2 &= 270 \text{ MPa}^2 \end{aligned} \right\} \begin{aligned} m_{\ln x} &= \tilde{m}_x = \frac{m_x^2}{\sqrt{\sigma_x^2 + m_x^2}} = 42.27 \\ \sigma_{\ln x}^2 &= \ln \left( \frac{\sigma_x^2}{m_x^2} + 1 \right) = 0.12516 \\ \sigma_{\ln x} &= 0.35378 \end{aligned}$$

$$\begin{aligned} P[30 < X < 60] &= P[X < 60] - P[X < 30] = F_x(60) - F_x(30) \\ &= F_0 \left( \frac{\ln 60 - \ln \tilde{m}_x}{\sigma_{\ln x}} \right) - F_0 \left( \frac{\ln 30 - \ln \tilde{m}_x}{\sigma_{\ln x}} \right) = F_0(0.990) - F_0(-0.969) \\ &= F_0(0.990) - 1 + F_0(0.969) = \\ &= 0.8389 - 1 + 0.8339 = 0.6728 \end{aligned}$$

