25. Let P_0 be the initial power output, P be the final power output, k be the multiplication factor, t be the time for the power reduction, and t_{gen} be the neutron generation time. Then, according to the result of Problem 22,

$$P = P_0\, k^{t/t_{\text{gen}}} \ .$$

We divide by P_0, take the natural logarithm of both sides of the equation and solve for $\ln k$:

$$\ln k = \frac{t_{\text{gen}}}{t}\, \ln \frac{P}{P_0} = \frac{1.3 \times 10^{-3}\,\text{s}}{2.6\,\text{s}}\, \ln \frac{350\,\text{MW}}{1200\,\text{MW}} = -0.0006161 \ .$$

Hence, $k = e^{-0.0006161} = 0.99938$.