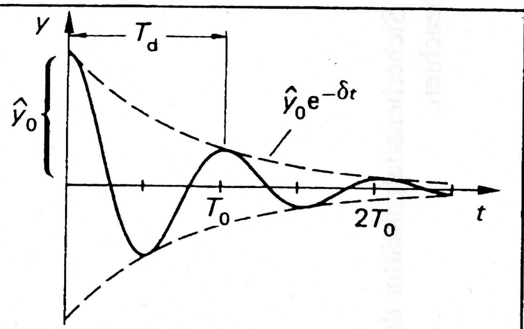
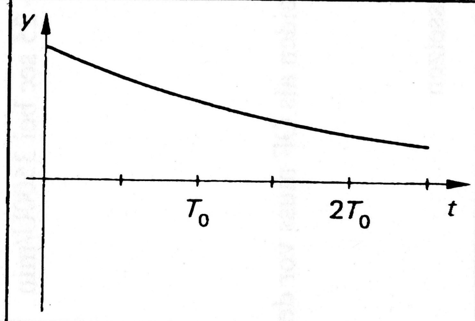
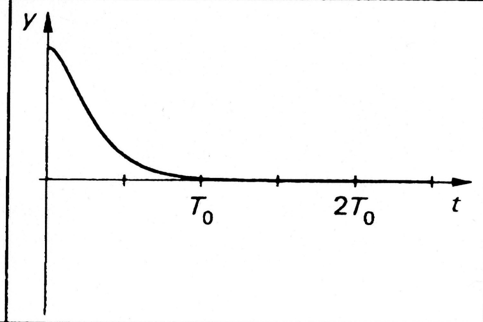
| | Schwingfall | Kriechfall | aperiodischer Grenzfall |
|---|---|---|---|
| Bedingung | $D < 1$<br>$\omega_0 > \delta$ | $D > 1$<br>$\omega_0 < \delta$ | $D = 1$<br>$\omega_0 = \delta$ |
| | $\boxed{y(t) = \hat{y}_0 e^{-\delta t} \cos(\omega_d t + \varphi_0)}$ (5–79)<br>$\omega_d = \sqrt{\frac{c}{m} - \frac{b^2}{4m^2}}$<br>$\omega_d = \sqrt{\omega_0^2 - \delta^2}$<br>$\omega_d = \omega_0 \sqrt{1 - D^2}$ (5–80) bis (5–82)<br>$\omega_d < \omega_0$ | $\boxed{y(t) = y_1 e^{(-\delta + \sqrt{\delta^2 - \omega_0^2})t} + y_2 e^{(-\delta - \sqrt{\delta^2 - \omega_0^2})t}}$ (5–89)<br>$y(t) = y_1 e^{-\omega_0 (D - \sqrt{D^2 - 1})t} + y_2 e^{-\omega_0 (D + \sqrt{D^2 - 1})t}$<br>$\omega_d$ imaginär | $\boxed{y(t) = (y_1 + c_2 t) e^{-\delta t}}$ (5–90)<br>$y(t) = (y_1 + c_2 t) e^{-\omega_0 D t}$<br>$\omega_d = 0$ |
| Graph der Funktion |  |  |  |

*Bild 5-21. Lösungen der drei Fälle bei gedämpften Systemen.*

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