

7.4

$$0 \leq t \leq t_1$$

$$\underline{0s \leq t \leq 2s}$$

$$t_1 \leq t \leq t_2$$

$$\underline{2s \leq t \leq 10s}$$

$$\ddot{X} = a_0$$

$$\dot{X} = a_0 t + \overset{\sim=0}{V_0}$$

$$V_{\max} = a_0 \cdot 2s$$

$$a_0 = \frac{V_{\max}}{2s}$$

$$X = a_0 \frac{t^2}{2} + \overset{\sim=0}{X_0}$$

$$X_1 = \frac{V_{\max}}{2s} \frac{4s^2}{2} = V_{\max} \cdot 1s$$

$$\ddot{X} = 0$$

$$\dot{X} = V_{\max} = \text{konst}$$

$$X = V_{\max} t$$

$$X_2 = V_{\max} \cdot 8s$$

$$\underbrace{X = X_1 + X_2}_{100m} = V_{\max} \cdot 1s + V_{\max} \cdot 8s = V_{\max} \cdot 9s$$

$$\underline{V_{\max} = \frac{100m}{9s} = 11,1 \frac{m}{s} \approx 40 km/h}$$

$$\underline{a_0 = \frac{V_{\max}}{2s} = \frac{11,1 \frac{m}{s}}{2s} = 5,5 m/s^2}$$

GLK