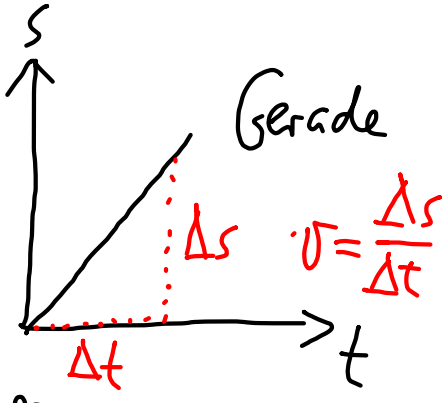
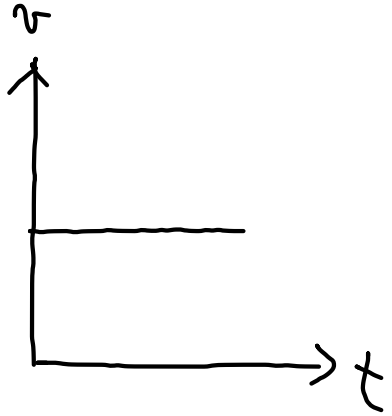
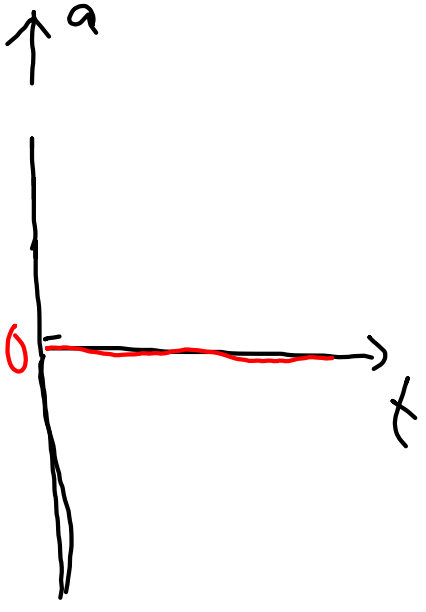
Bewegung

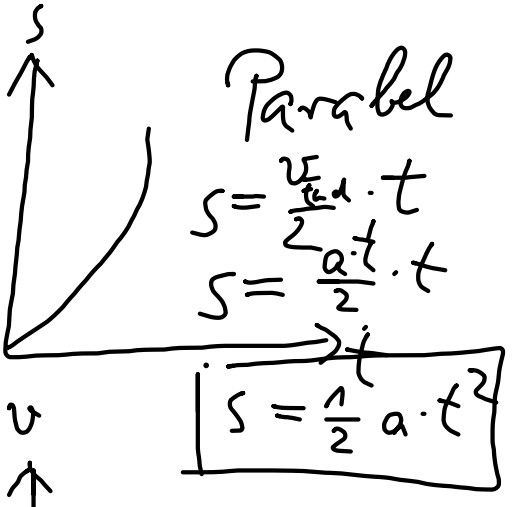
mit v = konst.

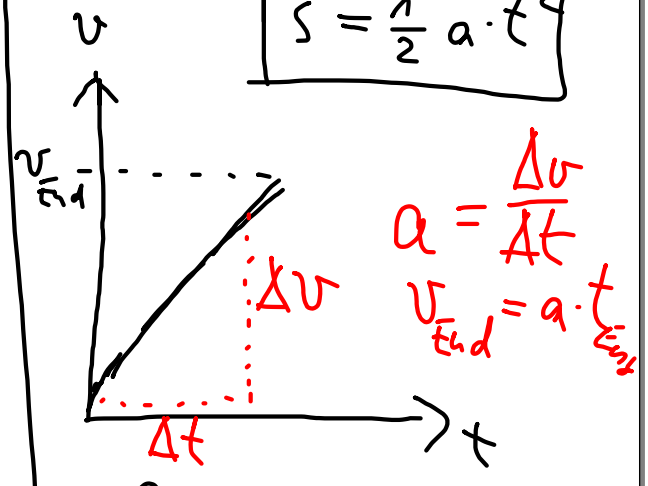


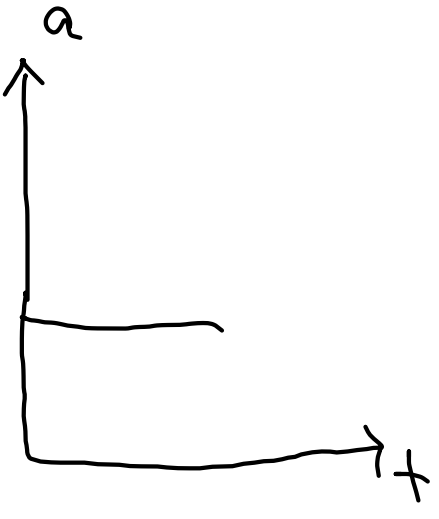




mit a = konst.







Übung 1:

Aufgabe 4: Jumbojet

gegeben: $v_{End} = 300 \frac{km}{h} \approx 83{,}3 \frac{m}{s}$

$a = 1{,}9 \frac{m}{s^2}$

gesucht: $t = ?$

$s = ?$

Rechnung: $t = \frac{v}{a}$ Tafelwerk: $a = \frac{v}{t}$

$t = \frac{83{,}3 \frac{m}{s}}{1{,}9 \frac{m}{s^2}} = 44\,s$

Einheitenrechnung:

$[t] = \frac{\frac{m}{s}}{\frac{m}{s^2}} = \frac{m}{s} \cdot \frac{s^2}{m} = s$

$s = \frac{1}{2} a t^2$

$s = \frac{1}{2} \cdot 1{,}9 \frac{m}{s^2} \cdot 44^2 s^2$

$= 1839\,m$

Übung 2:

Aufgabe 4: Bremsvorgänge

z.B. Porsche

gg.: $v = 100 \frac{km}{h}$

$s = 35{,}1\ m$

ges.: $a = ?$

Rechnung: $s = \frac{v^2}{2a}$

$a = \frac{v^2}{2s}$

Tafelwerk

$v = \sqrt{2as}$

$v^2 = 2a \cdot s$