

1.15 (fortsettelse)

$$v = \frac{\Delta s}{\Delta t}$$

$$\Delta s = v \cdot \Delta t$$

$$a) \quad s = v \cdot t = 3,00 \cdot 10^8 \left[\frac{m}{s} \right] \cdot 80,01 \cdot 10^{-6} [s]$$

$$= 240,03 \cdot 10^2 [m] = 24,0 [km]$$

Avstanden blir halverten $s_1 = \frac{24,0}{2} = 12,0 \text{ km}$

$$b) \quad s = v \cdot t = 3,00 \cdot 10^8 \frac{m}{s} \cdot 76,67 \mu s$$

$$= 3,00 \cdot 76,67 \cdot 10^8 \cdot 10^{-6} [m]$$

$$s_2 = \frac{s}{2} = \frac{23,0}{2} = 11,5 \text{ km}$$

$$v = \frac{\Delta s}{\Delta t} = \frac{(20 - 11,5) \text{ km}}{20 \text{ s}} = \frac{500 \text{ m}}{20 \text{ s}} = 250 \frac{m}{s}$$

1,16

$$a = \frac{\Delta v}{\Delta t} = \frac{v_2 - v_1}{\Delta t} = \frac{20 \left[\frac{\text{m}}{\text{s}} \right] - 10 \left[\frac{\text{m}}{\text{s}} \right]}{5,9 \left[\text{s} \right]}$$

$$= \frac{10 \left[\frac{\text{m}}{\text{s}} \right]}{5,9 \left[\text{s} \right]} = 2,0 \frac{\text{m}}{\text{s}^2}$$

1,18

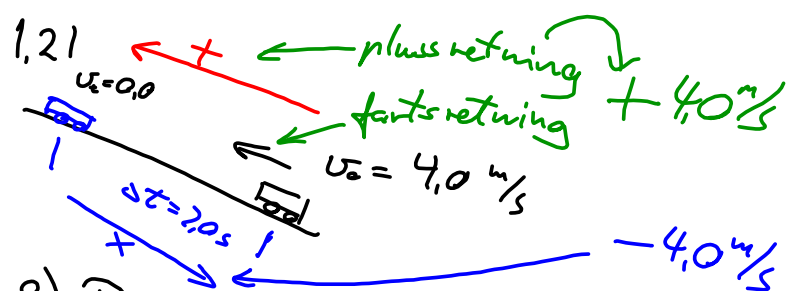
$$v_A = \frac{10,0 \overset{\text{milli}}{\text{mm}}}{3,8 \overset{\text{milli}}{\text{ms}}} = \frac{10,0 \cdot 10^{-3} \text{ m}}{3,8 \cdot 10^{-3} \text{ s}} = 2,63 \frac{\text{m}}{\text{s}}$$

2,6

$$v_B = \frac{10,0 \text{ mm}}{2,6 \text{ ms}} = 3,84 \frac{\text{m}}{\text{s}}$$

3,8

$$a = \frac{\Delta v}{\Delta t} = \frac{(3,8 - 2,6) \left[\frac{\text{m}}{\text{s}} \right]}{0,34 \left[\text{s} \right]} = 3,6 \left[\frac{\text{m}}{\text{s}^2} \right]$$

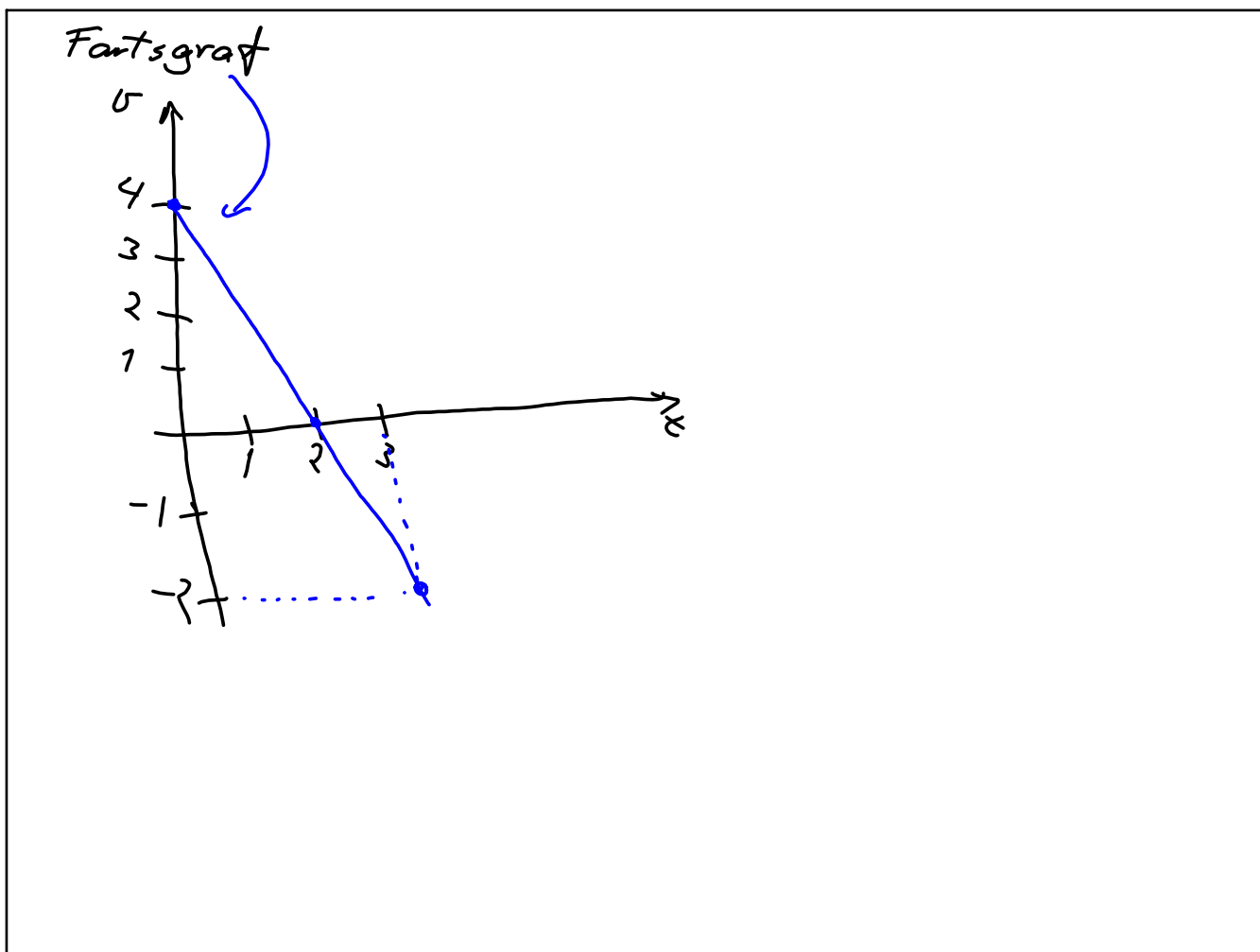


a) Da vagna snur er farten $0,0 \text{ m/s}$

$$b) a = \frac{\Delta v}{\Delta t} = \frac{v_f - v_0}{\Delta t} = \frac{(0,0 - 4,0) \text{ m/s}}{2,0 \text{ s}} = -2,0 \text{ m/s}^2$$

$$c) v = v_0 + a \cdot t = 4,0 \text{ m/s} + (-2,0) \cdot 3,0 \text{ s} = 4,0 \text{ m/s} - 6,0 \text{ m/s} = -2,0 \text{ m/s}$$

vagna troller nedover



1,24 $a = 4,00 \text{ m/s}^2$

$u_0 = 9,0 \text{ m/s}$

$\Delta t = 2,50 \text{ s}$

a) $u = u_0 + at = 0,0 \text{ m/s} + 4,00 \text{ m/s}^2 \cdot 2,50 \text{ s}$

$= 10,00 \text{ m/s}$

b) $s = u_0 \cdot t + \frac{1}{2} a t^2 = 0,0 \cdot 2,50 + \frac{1}{2} 4,00 \cdot (2,50)^2$

$= 12,50 \text{ m}$

c) $\Delta s = 100 - 12,5 = 87,5 \text{ m}$ $t_2 = t_1 + \Delta t$

$t_1 = 2,50 \text{ s}$

$\Delta t = \frac{\Delta s}{u} = \frac{87,5 \text{ m}}{10,0 \text{ m/s}} = 8,75 \text{ s}$

$t_2 = 2,50 \text{ s} + 8,75 \text{ s}$

$= 11,25 \text{ s}$

$u = \frac{\Delta s}{\Delta t}$

$\Delta t = \frac{\Delta s}{u}$

$\frac{\text{m}}{\text{s}^2} \cdot \text{s} = \frac{\text{m}}{\text{s}}$

1.24 d

Antar et rekordløp er på $9,60\text{ s}$

Vi sier at $t_1 = 2,50\text{ s}$ og $s = 12,5\text{ m}$

$$t_2 = t_1 + \Delta t = 2,50 + \Delta t = 9,60\text{ s}$$

$$\Delta t = 7,10\text{ s}$$

$$v = \frac{\Delta s}{\Delta t} = \frac{12,5}{7,1} = 1,76\text{ m/s}$$

1,25

$$a = 3,0 \frac{m}{s^2}$$
$$s = 0$$
$$v_0 = 0,0 \frac{m}{s}$$

$$v = 30 \frac{m}{s}$$
$$s = ?$$

$$v^2 - v_0^2 = 2as$$

$$s = \frac{v^2 - v_0^2}{2a} = \frac{30^2 - 0,0^2}{2 \cdot 3,0} = \frac{900}{6,0} = 150 \text{ m}$$