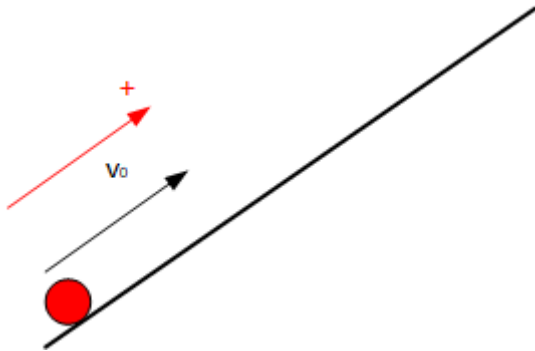


Tressfysikk – Løsning oppgave 1.332



Startfarten $v_0 = 5,0$ [m/s]. Absoluttverdien av akselerasjonen $|a| = 2,0$ [m/s²]

- a) Akselerasjonen er negativ fordi farten blir mindre.
b) For å finne farten etter $t = 1,0$ [s], kan vi bruke formelen

$$v = v_0 + a \cdot t = 5,0 \text{ [m/s]} + (-2,0) \cdot 1,0 \left[\frac{\text{m}}{\text{s}^2} \cdot \text{s} \right] = 3,0 \text{ [m/s]}$$

- c) Setter $v = 0,0$ [m/s] i formelen over

$$\begin{aligned} 0,0 \text{ [m/s]} &= v_0 + a \cdot t \\ t &= \frac{-v_0}{a} = \frac{-5,0 \text{ [m/s]}}{-2,0 \text{ [m/s}^2\text{]}} = 2,5 \text{ [s]} \end{aligned}$$

- d) Da farten er null, har kula trillet s:

$$s = \frac{(v_0 + v)}{2} \cdot t = \frac{(5,0 + 0,0)}{2} \cdot 2,5 \left[\frac{\text{m}}{\text{s}} \cdot \text{s} \right] = 6,3 \text{ [m]}$$

- e) Farten etter $t = 4,0$ [s] er v_4 , og avstanden er s_4 :

$$v_4 = v_0 + a \cdot t = 5,0 \text{ [m/s]} + (-2,0) \cdot 4,0 \left[\frac{\text{m}}{\text{s}^2} \cdot \text{s} \right] = -3,0 \text{ [m/s]}$$

$$s_4 = \frac{(v_0 + v_4)}{2} \cdot t = \frac{(5,0 + (-3,0))}{2} \cdot 4,0 \left[\frac{\text{m}}{\text{s}} \cdot \text{s} \right] = 4,0 \text{ [m]}$$

f) Farten etter $t = 5,0$ [s] er v_5 , og avstanden er s_5 :

$$v_5 = v_0 + a \cdot t = 5,0 \text{ [m/s]} + (-2,0) \cdot 5,0 \left[\frac{\text{m}}{\text{s}^2} \cdot \text{s} \right] = -5,0 \text{ [m/s]}$$

$$s_5 = \frac{(v_0 + v_5)}{2} \cdot t = \frac{(5,0 + (-5,0))}{2} \cdot 5,0 \left[\frac{\text{m}}{\text{s}} \cdot \text{s} \right] = 0,0 \text{ [m]}$$

g) Etter 6,0 [s] er kula s_6 :

$$s_6 = v_0 \cdot t + \frac{1}{2} \cdot a \cdot t^2 = 5,0 \cdot 6,0 - \frac{1}{2} \cdot 2,0 \cdot 6,0^2 = 30,0 - 36,0 = -6,0 \text{ [m]}$$