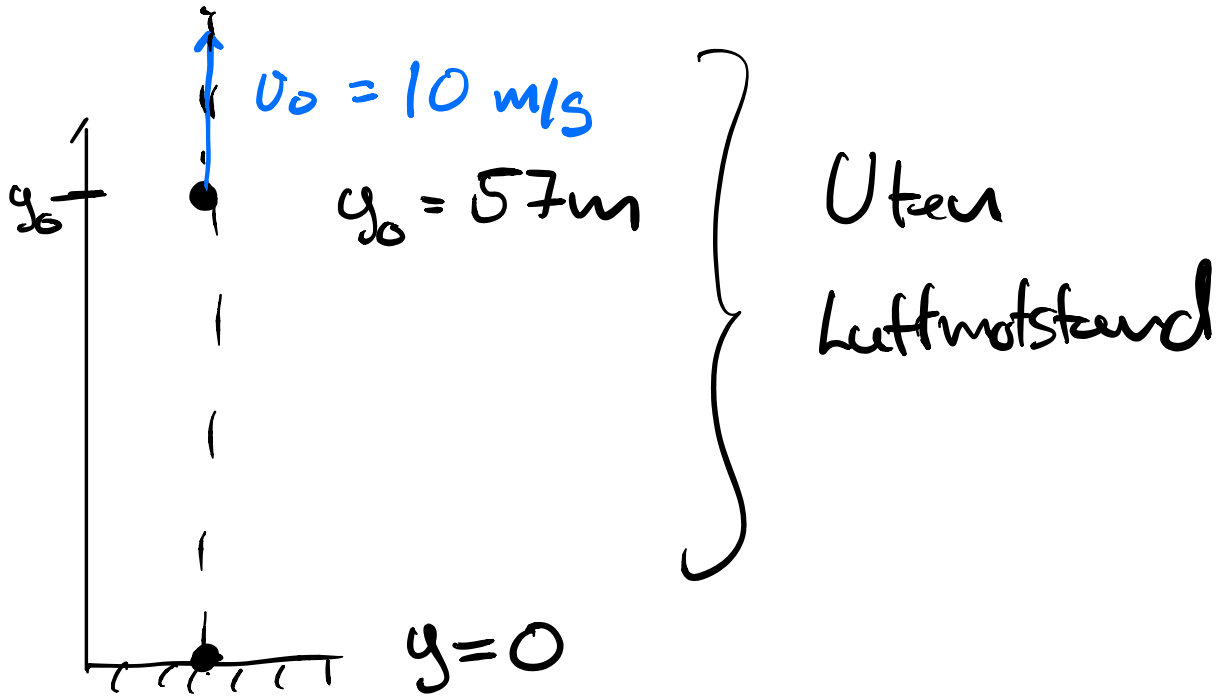
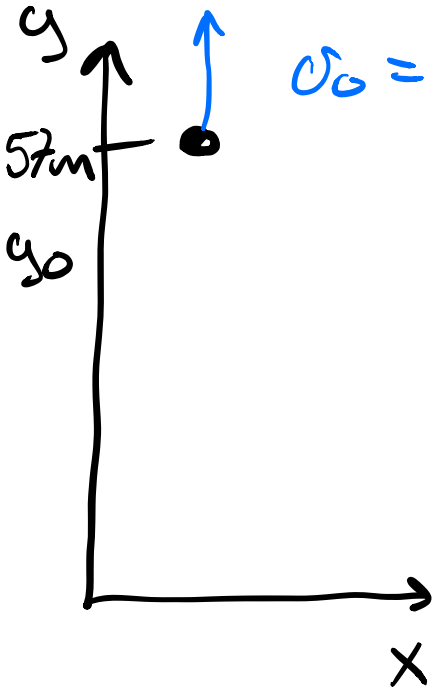
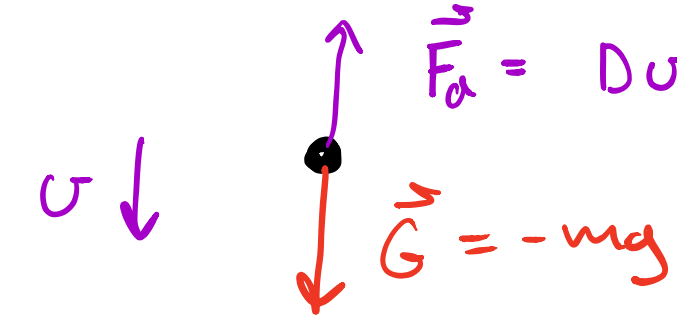
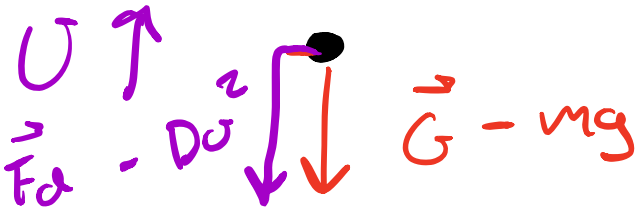


Med luftmotstand

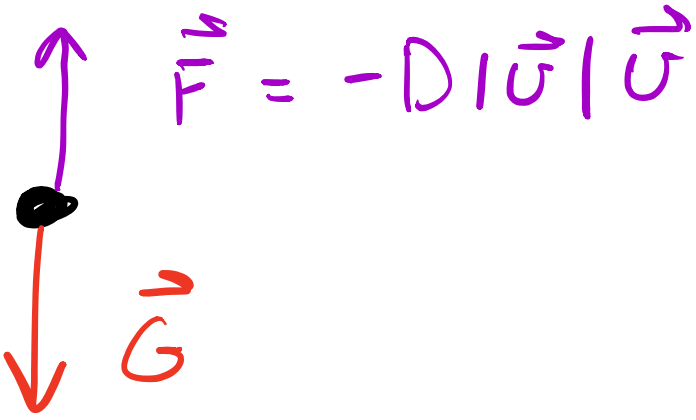


Frilegemediagram:





$$\vec{F}_d = -D|\vec{v}|\cdot\vec{v}$$



N. 2. lov $\quad \sum \vec{F} = m\vec{a}$

$$\vec{G} + \vec{F} = m\vec{a}$$

$$-mg - D|v|\cdot v = ma \quad | \cdot \frac{1}{m}$$

$$\boxed{a = -g - \frac{D}{m}\cdot|v|\cdot v}$$

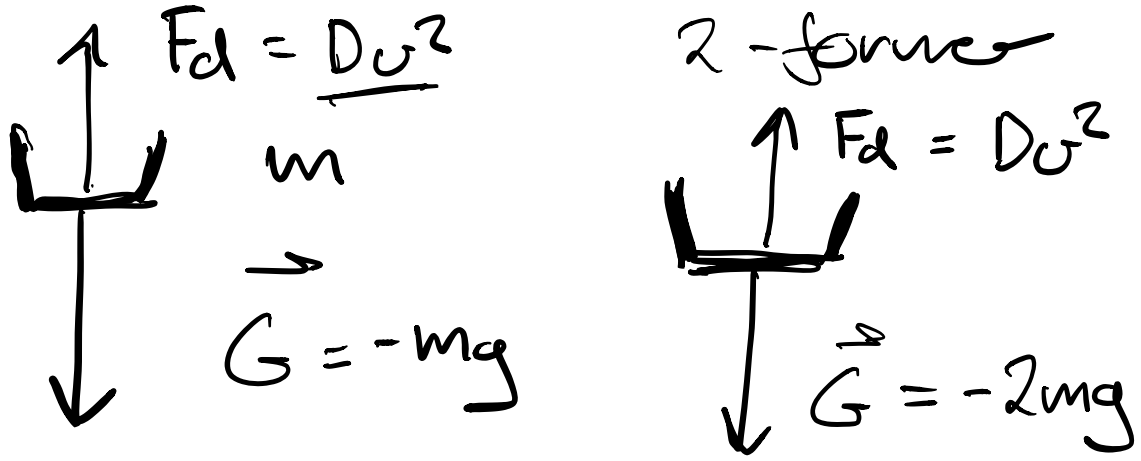
$$\boxed{\frac{D}{m} = 1.0\ m^{-1}}$$

$y_0 = 57\,m$

$v_0 = 10\,m/s$

$|\vec{v}| = \text{norm}(\vec{v})$

Muffins form



N.2. lov

1 form $\quad -mg - D \cdot |v| \cdot v = ma \quad | \cdot \frac{1}{m}$

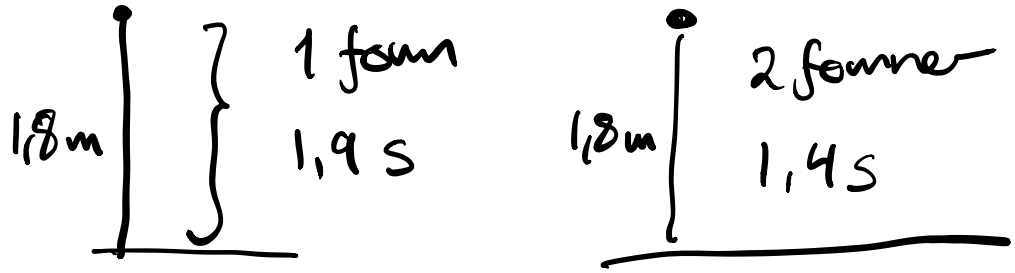
$$-g - \frac{D}{m} \cdot |v| \cdot v = a$$

2former $\quad -2mg - D|v| \cdot v = 2ma \quad | \cdot \frac{1}{2m}$

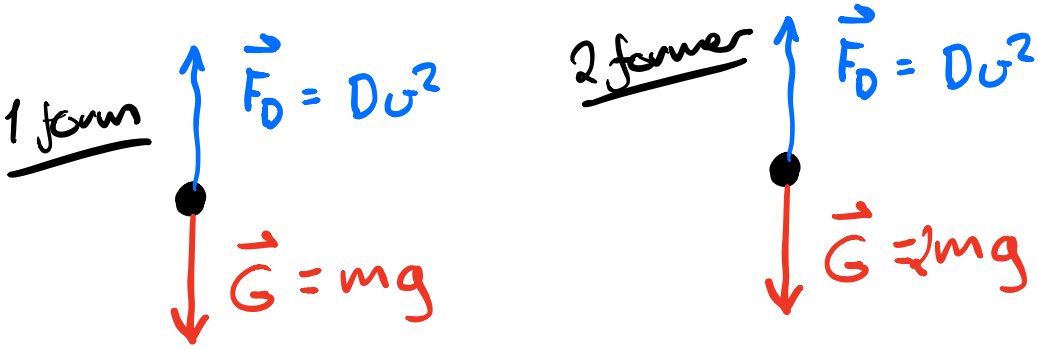
$$-g - \frac{D}{2m}|v| \cdot v = a$$

1 form $\quad D/m = 10 \ [m^{-1}]$

2 former $\quad D/2m = 5{,}0 \ [m^{-1}]$



Vi antar at formene når terminalhastighet med en gang.



N. 1. lov $\quad F_D = G$

1 form $\quad mg = Dv^2$

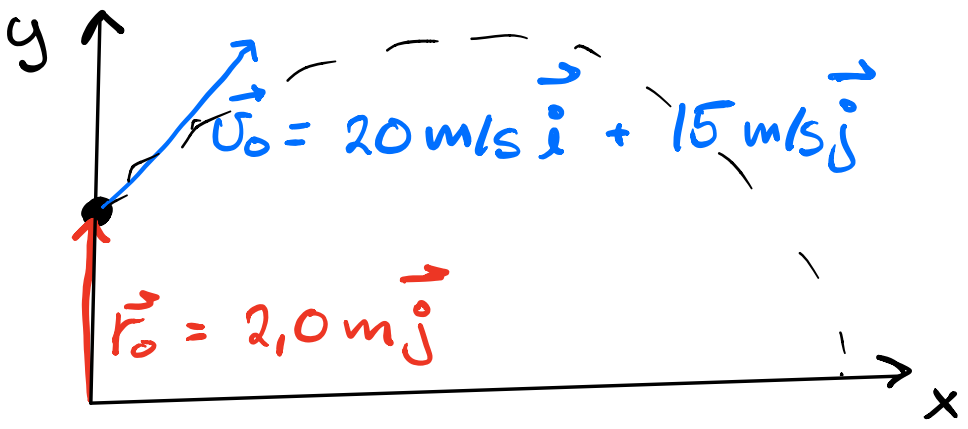
2 former $\quad 2mg = Dv^2$

$$\frac{mg}{D} = v^2 \qquad \frac{2mg}{D} = v^2$$

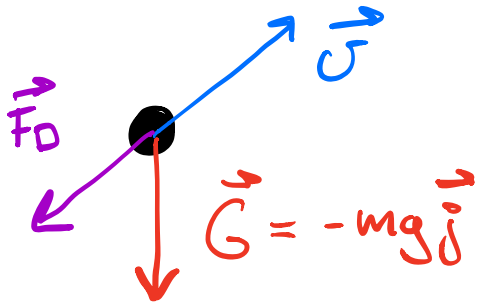
$$v = \sqrt{\frac{mg}{D}} \qquad v = \sqrt{2} \cdot \sqrt{\frac{mg}{D}}$$

2 former faller $\sqrt{2}$ ganger raskere enn 1 form.

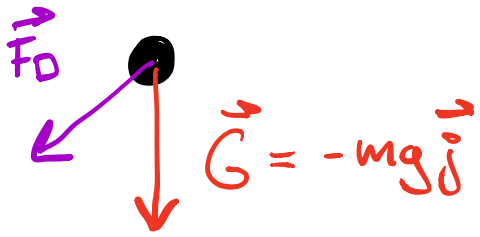
Kast 2D



Luftmotstand:



Frilegemediagram:



$$\vec{G} = -mg\vec{j}$$

$$\vec{F}_D = -D \cdot |\vec{v}| \cdot \vec{v}$$

N. 2.100:

$$\vec{G} + \vec{F}_D = m\vec{a}$$

$$-mg\vec{j} - D|\vec{v}| \cdot \vec{v} = m\vec{a} \quad | \cdot \frac{1}{m}$$

$$-g\vec{j} - \frac{D}{m} \cdot |\vec{v}| \cdot \vec{v} = \vec{a}$$