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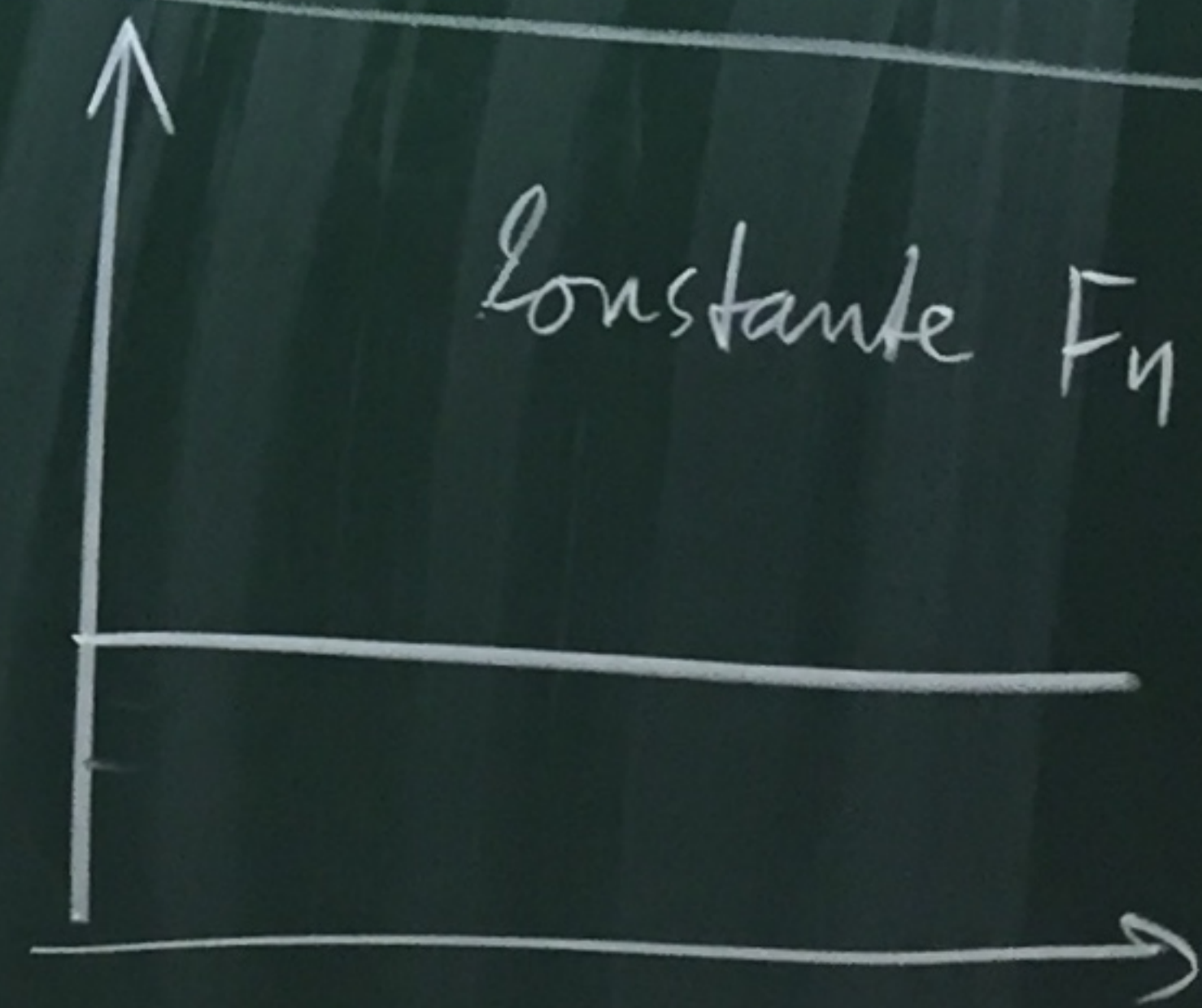
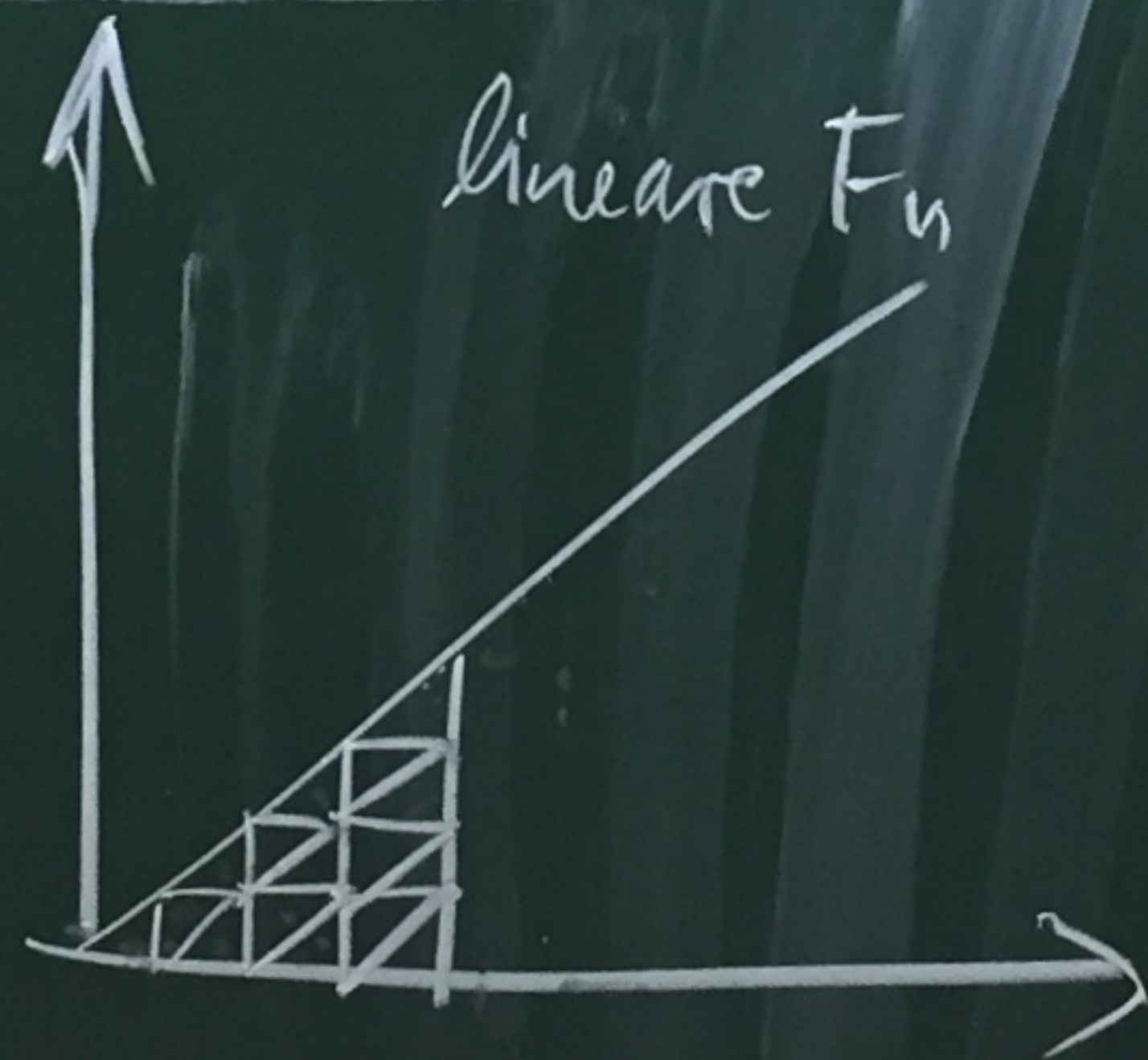
$$11,3 \frac{g}{cm^3} = 11,3$$

$$\frac{1 \div 1000 \frac{kg}{m^3}}{(10^2 m)^3} = 11,3 \cdot \frac{10^{-3} \frac{kg}{m^3}}{(10^{-2})^3 m^3}$$

10^3



$$\log_a(x) = \frac{\log_b(x)}{\log_b(a)}$$

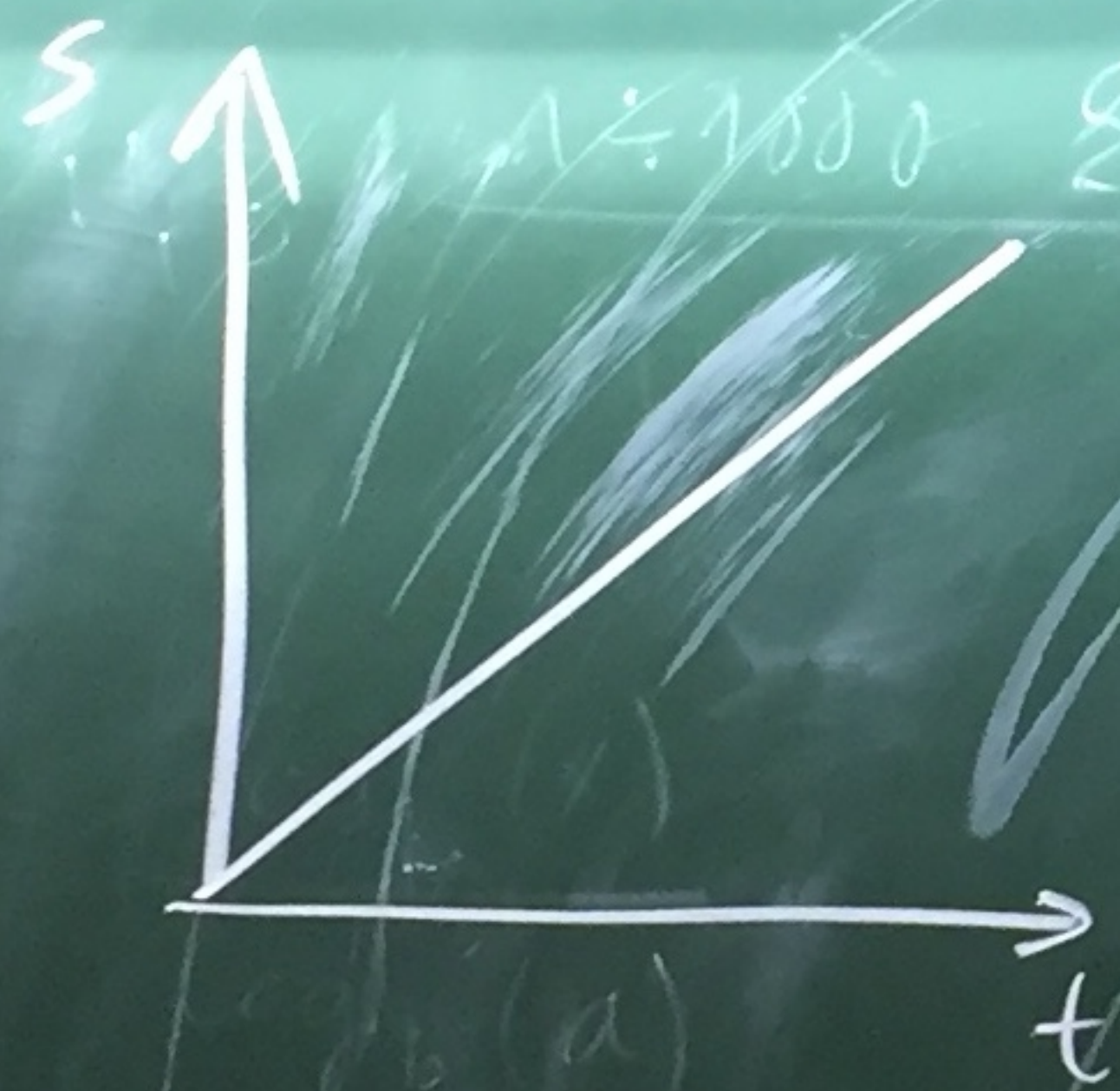


$$[\Delta s] = m$$

$$[\Delta t] = s$$

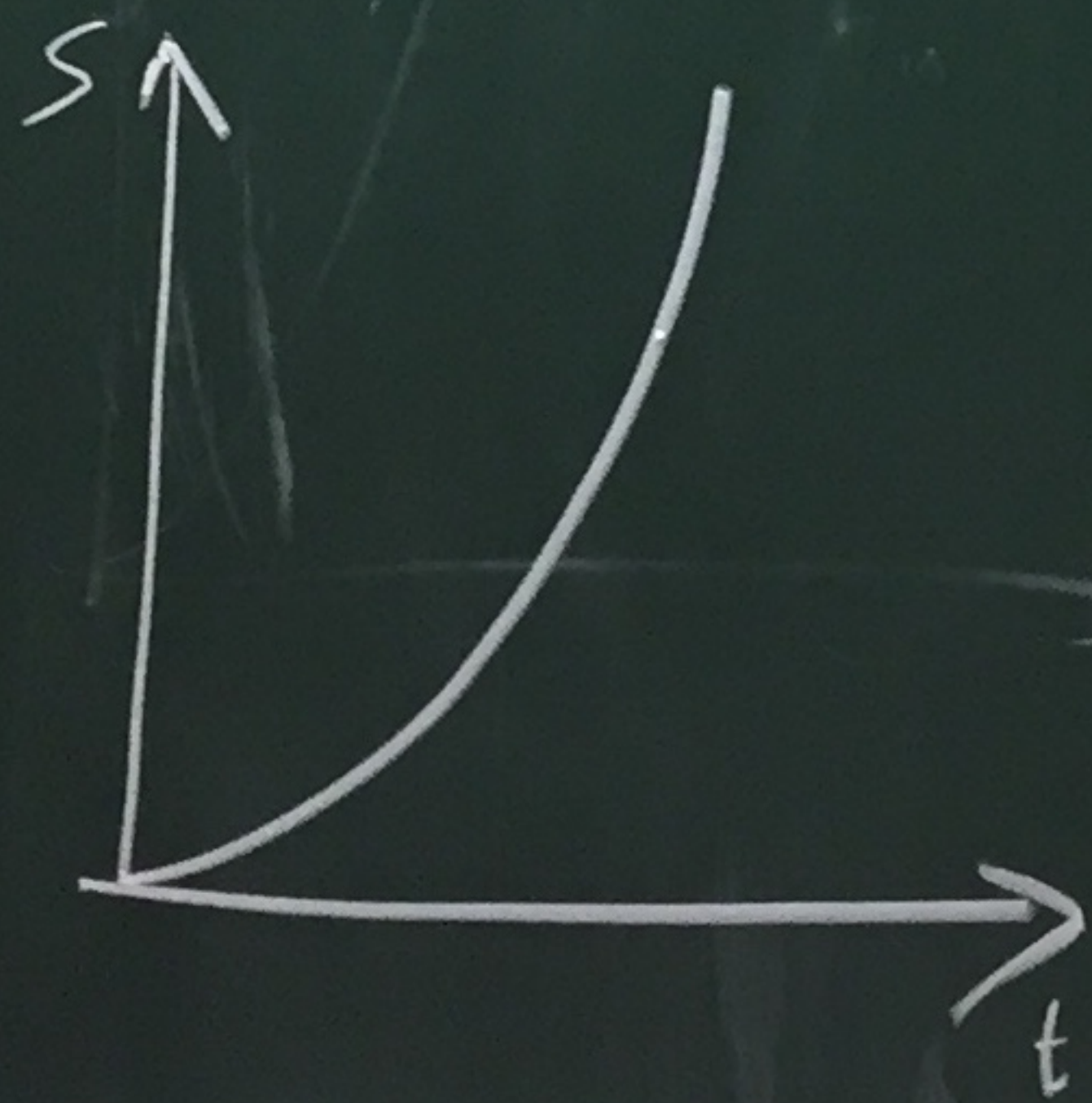
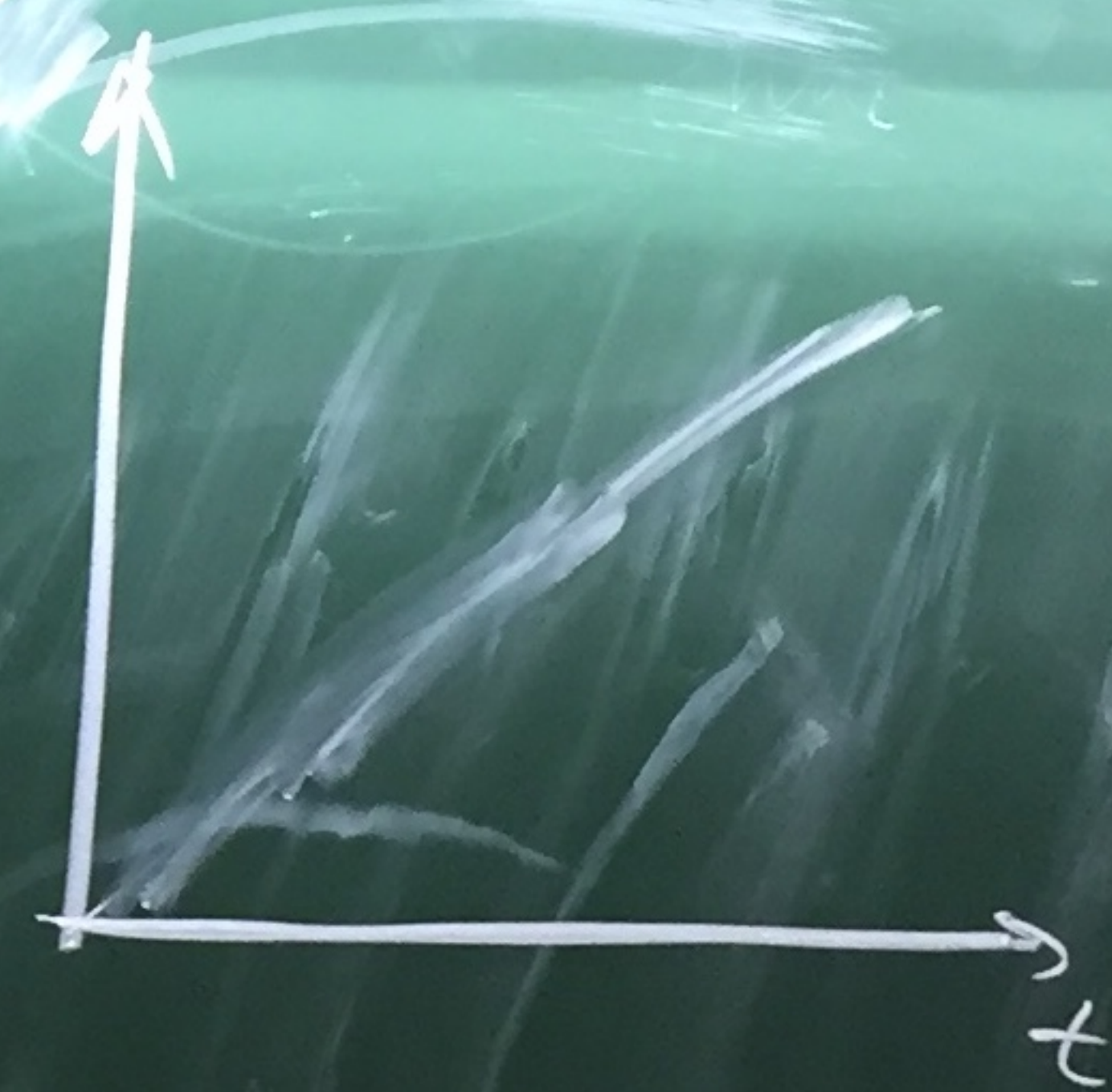
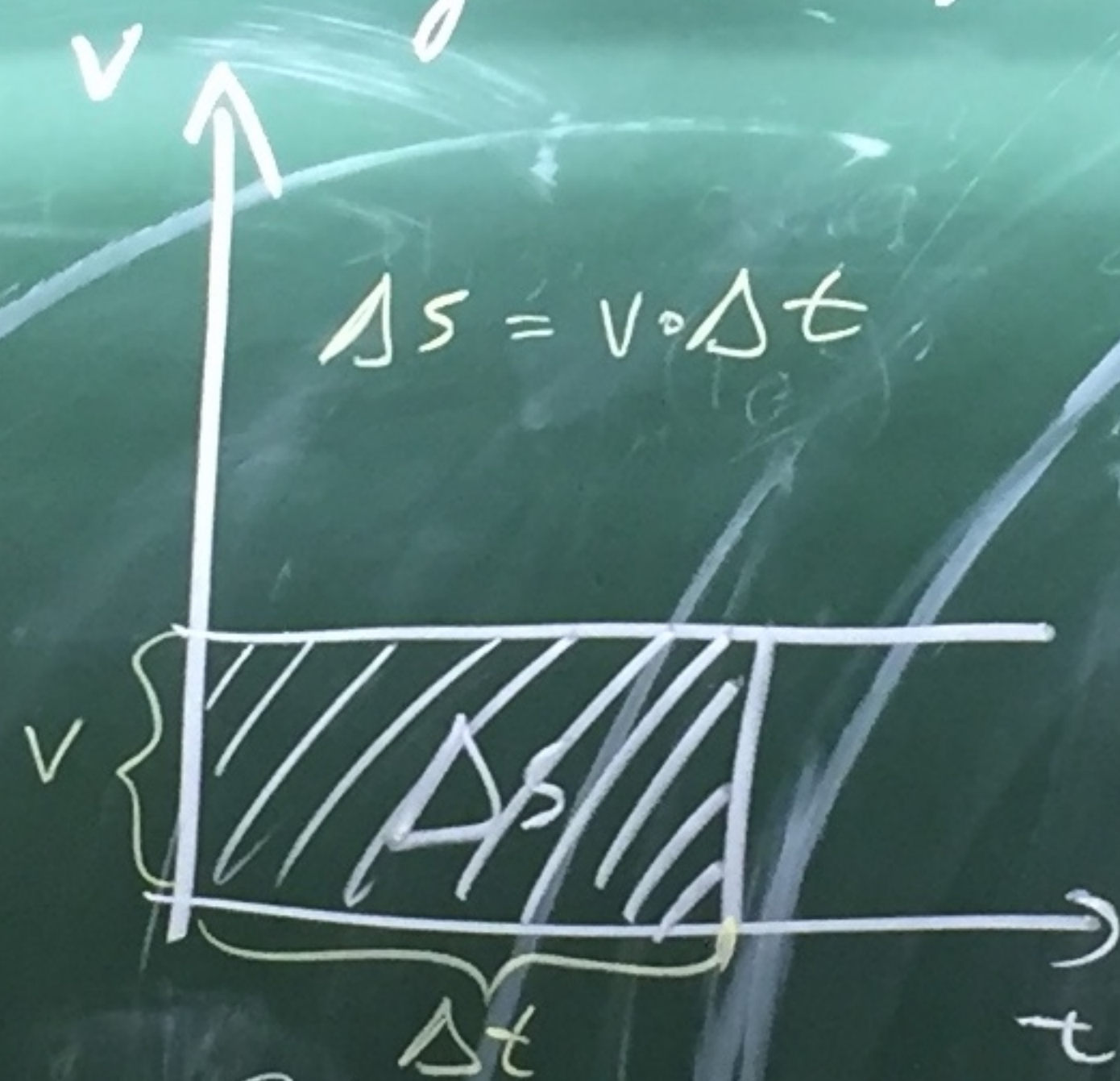
$$v = \frac{ds}{dt}$$

$$a = \frac{dv}{dt}$$



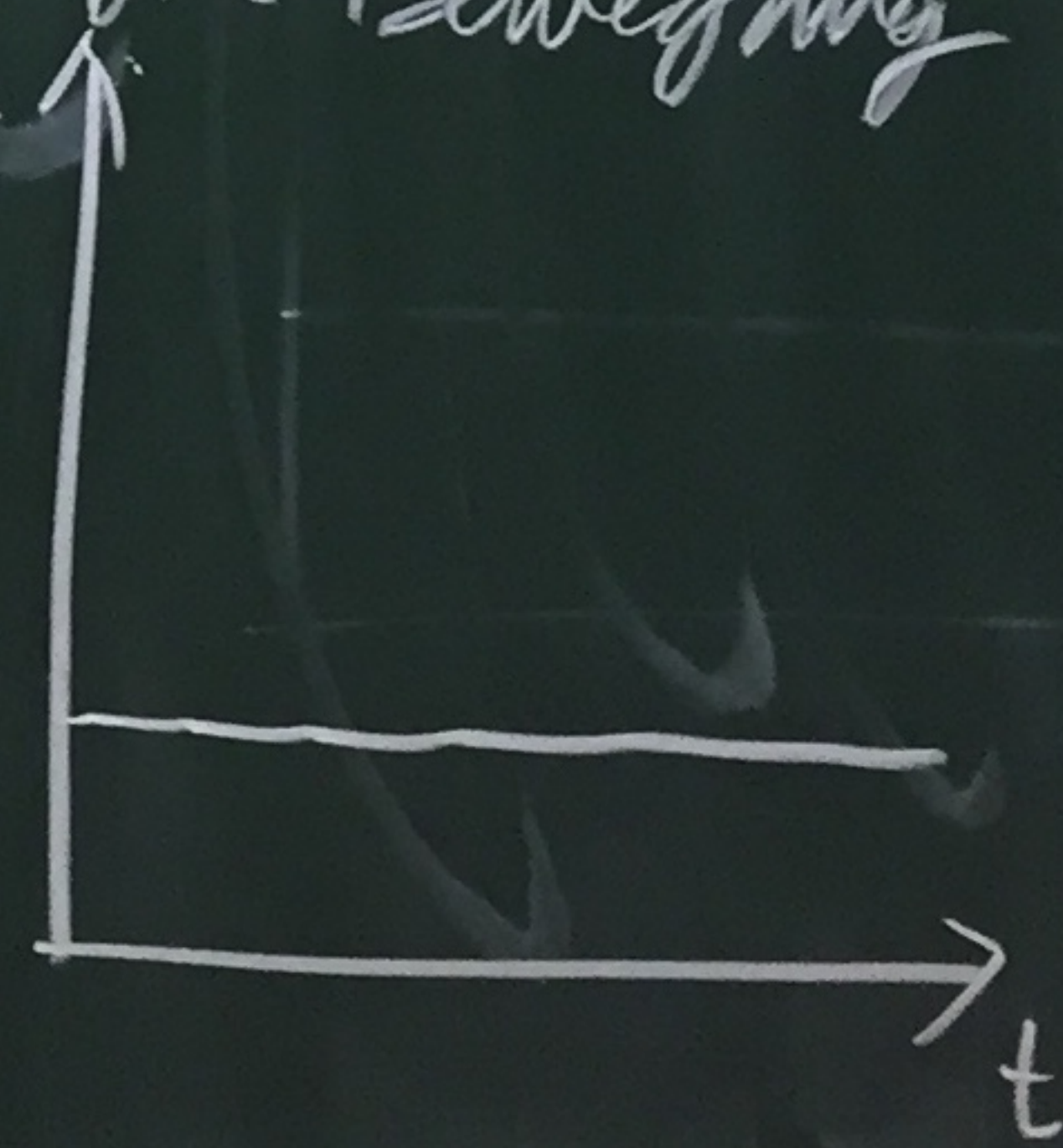
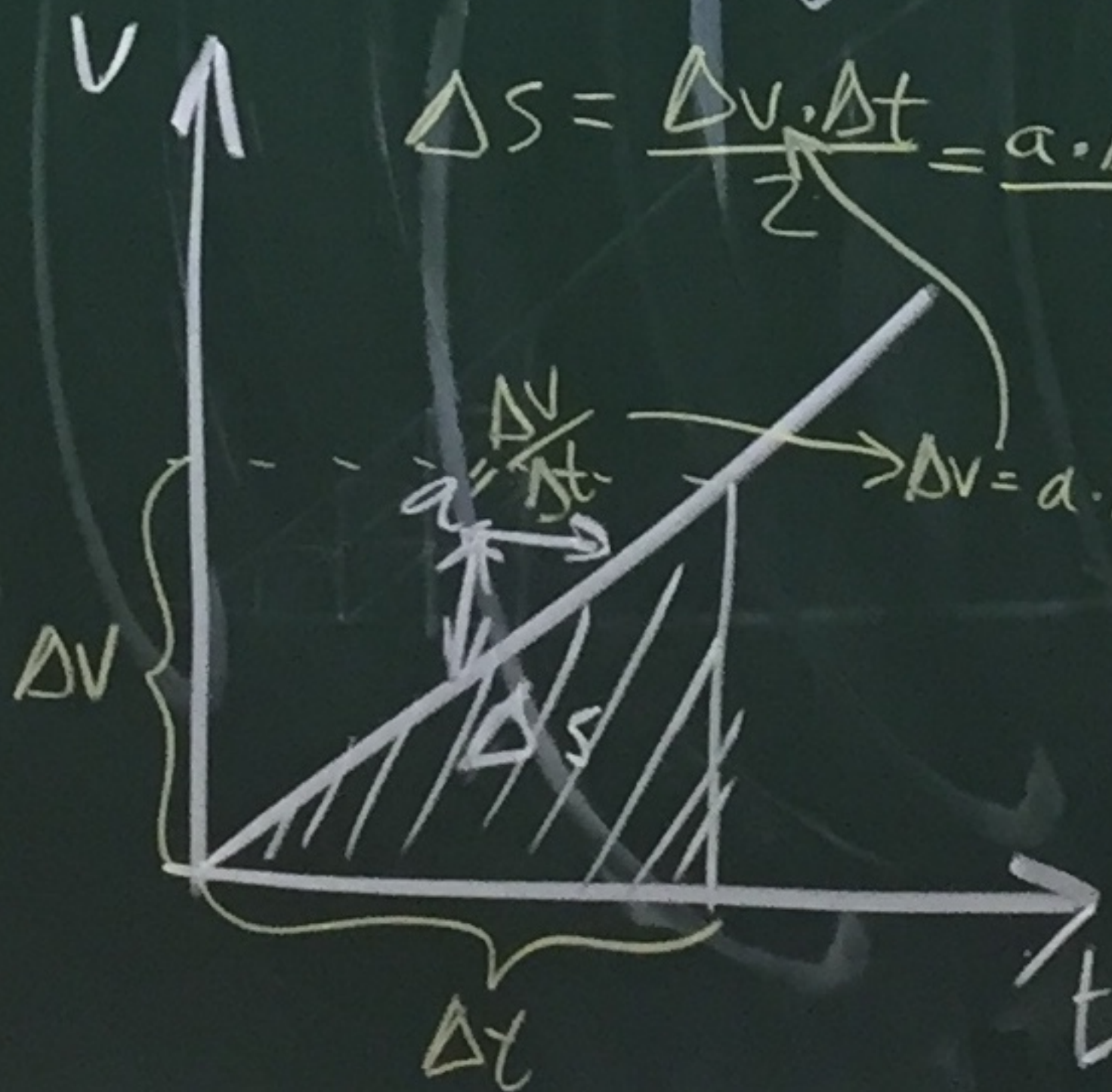
Gleichwurige Bewegung

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

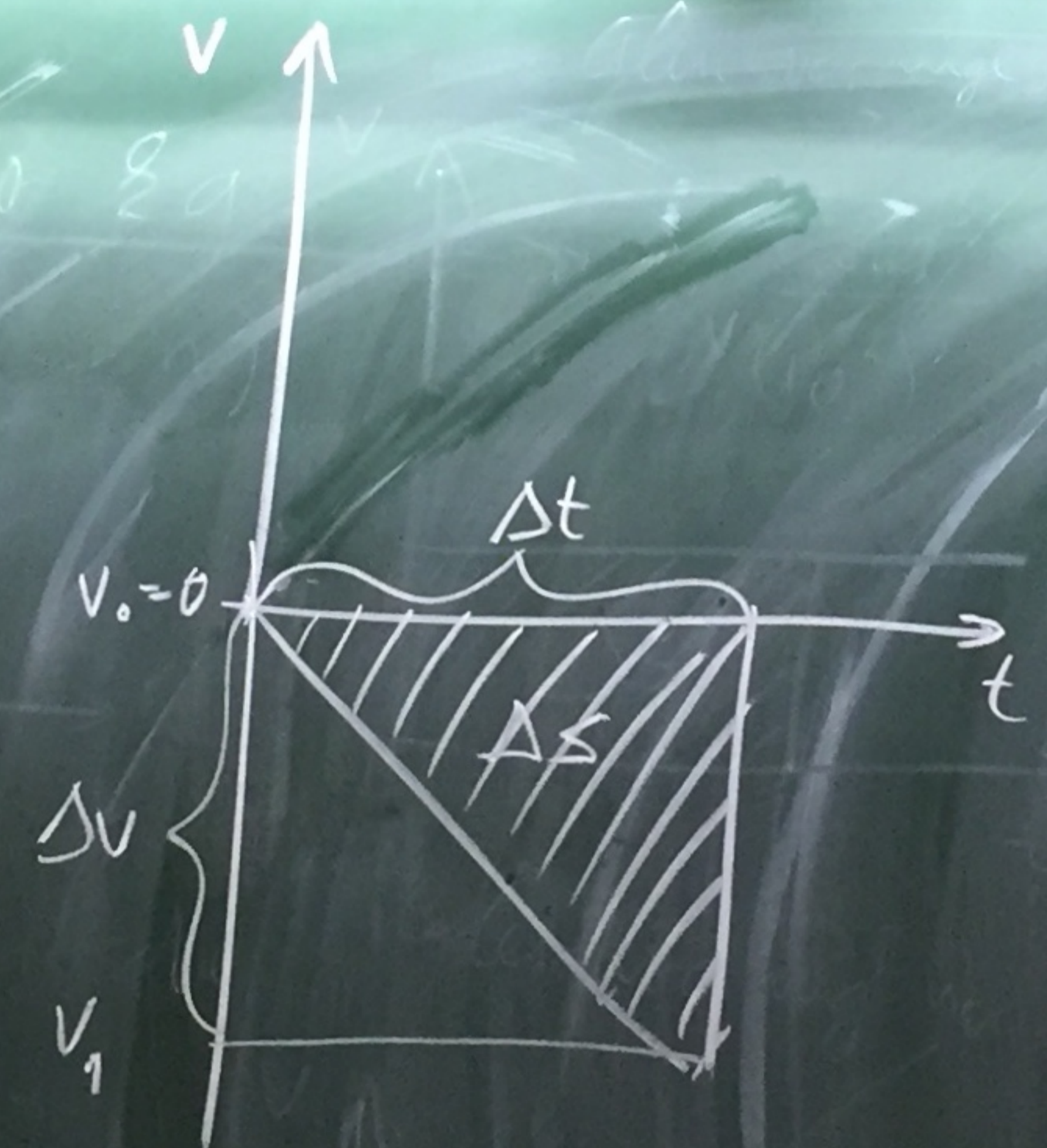
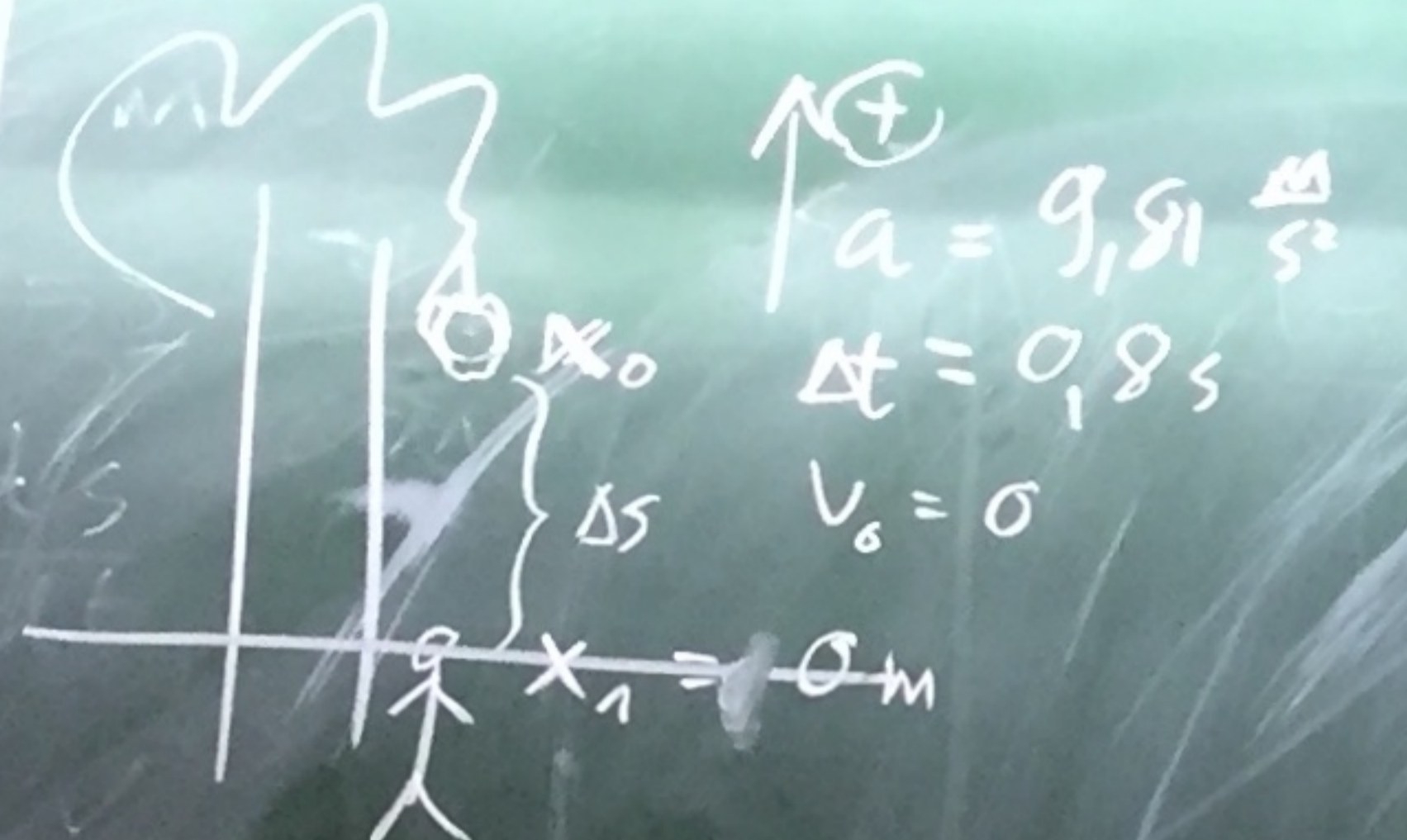


Gleichwurige beschleunigte Bewegung

$$\Delta s = \frac{\Delta v \cdot \Delta t}{2} = \frac{a \cdot \Delta t \cdot \Delta t}{2}$$



3/6 (16)



d) $a = \bar{a} = \frac{\Delta v}{\Delta t}$
 $\Delta v = a \cdot \Delta t = 9,81 \frac{m}{s^2} \cdot 0,8 s$

b) $\Delta s = x_1 - x_0 = \frac{\Delta t \cdot \Delta v}{2} = \frac{0,8 s \cdot (-7,848 \frac{m}{s})}{2} = -3,14 m$

$x_0 = x_1 - \Delta s = 0 - (-3,14 m) = 3,14 m$

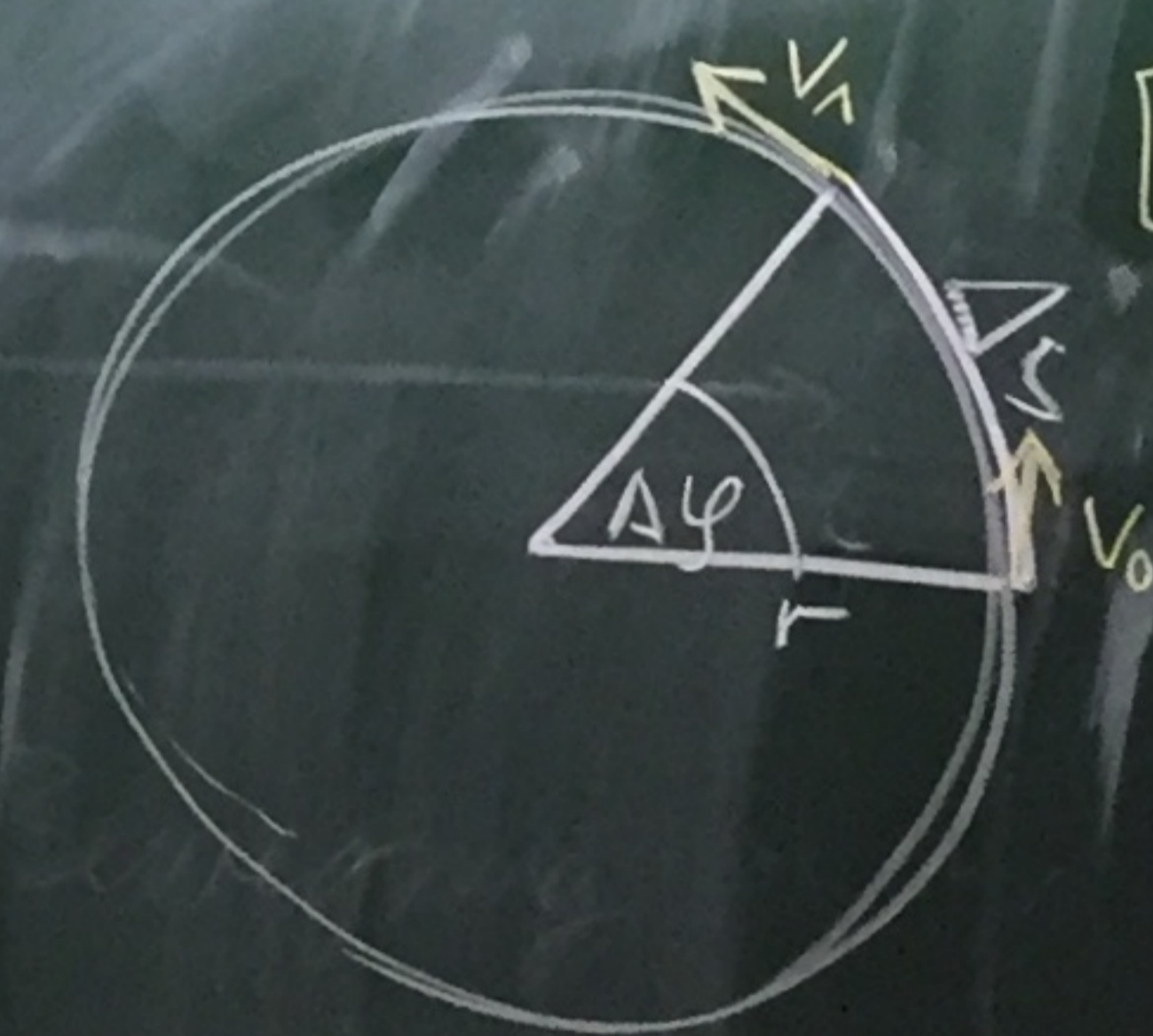
Lineare Bewegung

$v = \frac{ds}{dt}$

Kreisbewegung

$\Delta \varphi = \frac{\Delta s}{r}$
 $\omega = \frac{d\varphi}{dt} = \frac{\Delta s}{r \cdot dt} = \frac{v}{r}$

$[\omega] = \frac{rad}{s} = \frac{1}{s} = s^{-1}$



$f = \frac{N}{\Delta t} = \frac{1}{T}$

$[f] = \frac{1}{s} = Hz$

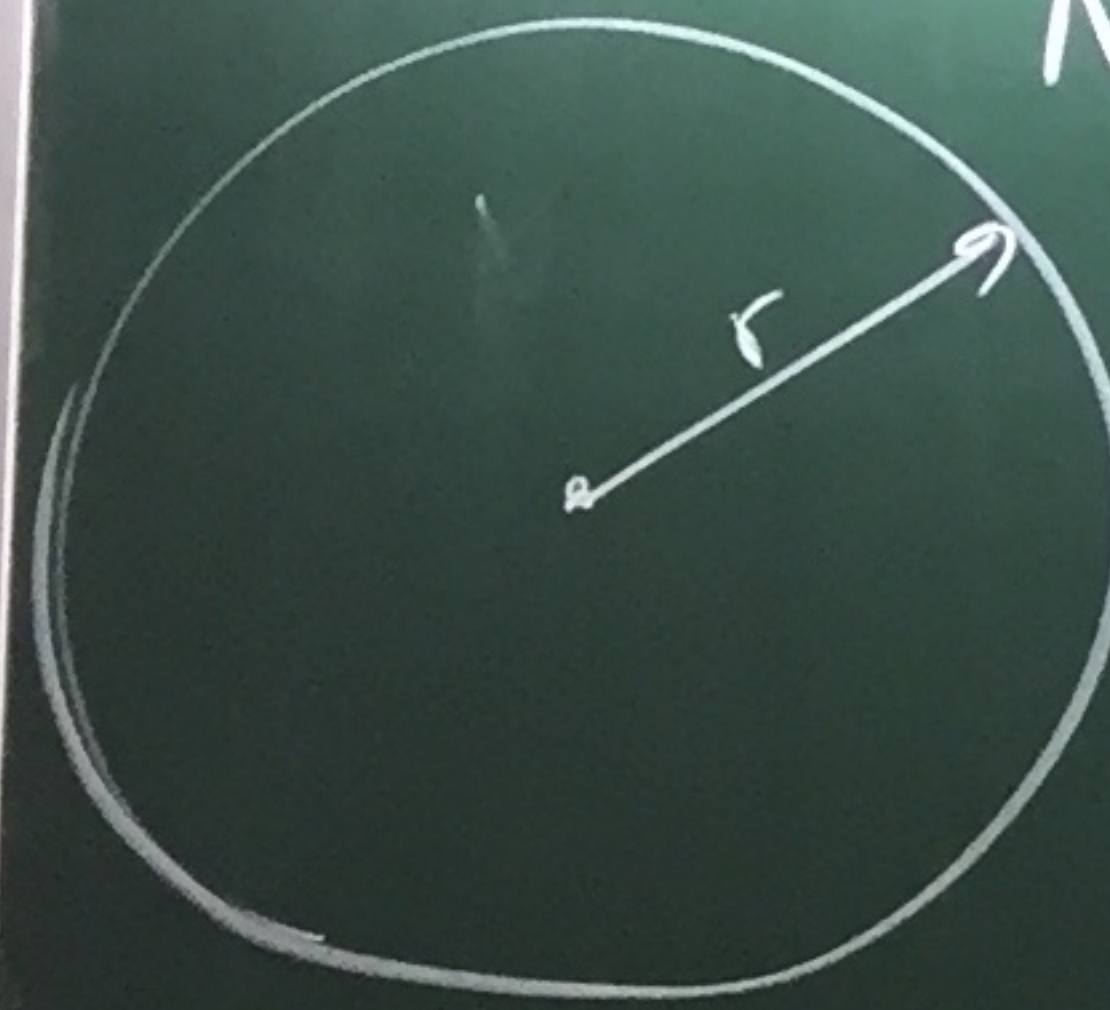
komplette Umdrehung:

$\omega = \frac{\Delta \varphi}{\Delta t} = \frac{2\pi}{T} = 2\pi f$

$\frac{\left(\frac{a}{b}\right)}{c} = \frac{a}{b \cdot c}$

$\frac{\left(\frac{a}{b}\right)}{\left(\frac{c}{d}\right)} = \frac{da}{bc}$

3/9 (16)



$$r = 8 \text{ m}$$

$$\Delta t = 210 \text{ min} = 210 \text{ s}$$

$$N = 20$$

$$a) T = \frac{\Delta t}{N} = \frac{210 \text{ s}}{20} = 10,5 \text{ s}$$

$$b) f = \frac{1}{T} = \frac{1}{10,5 \text{ s}} = 0,095 \text{ Hz}$$

$$c) \omega = 2\pi f = 2 \cdot \pi \cdot 0,095 \frac{1}{\text{s}} = 0,598 \frac{1}{\text{s}}$$

$$d) \omega = \frac{v}{r} \rightarrow v = \omega r = 4,78 \frac{\text{m}}{\text{s}}$$

Lineare Bewegung

Δs

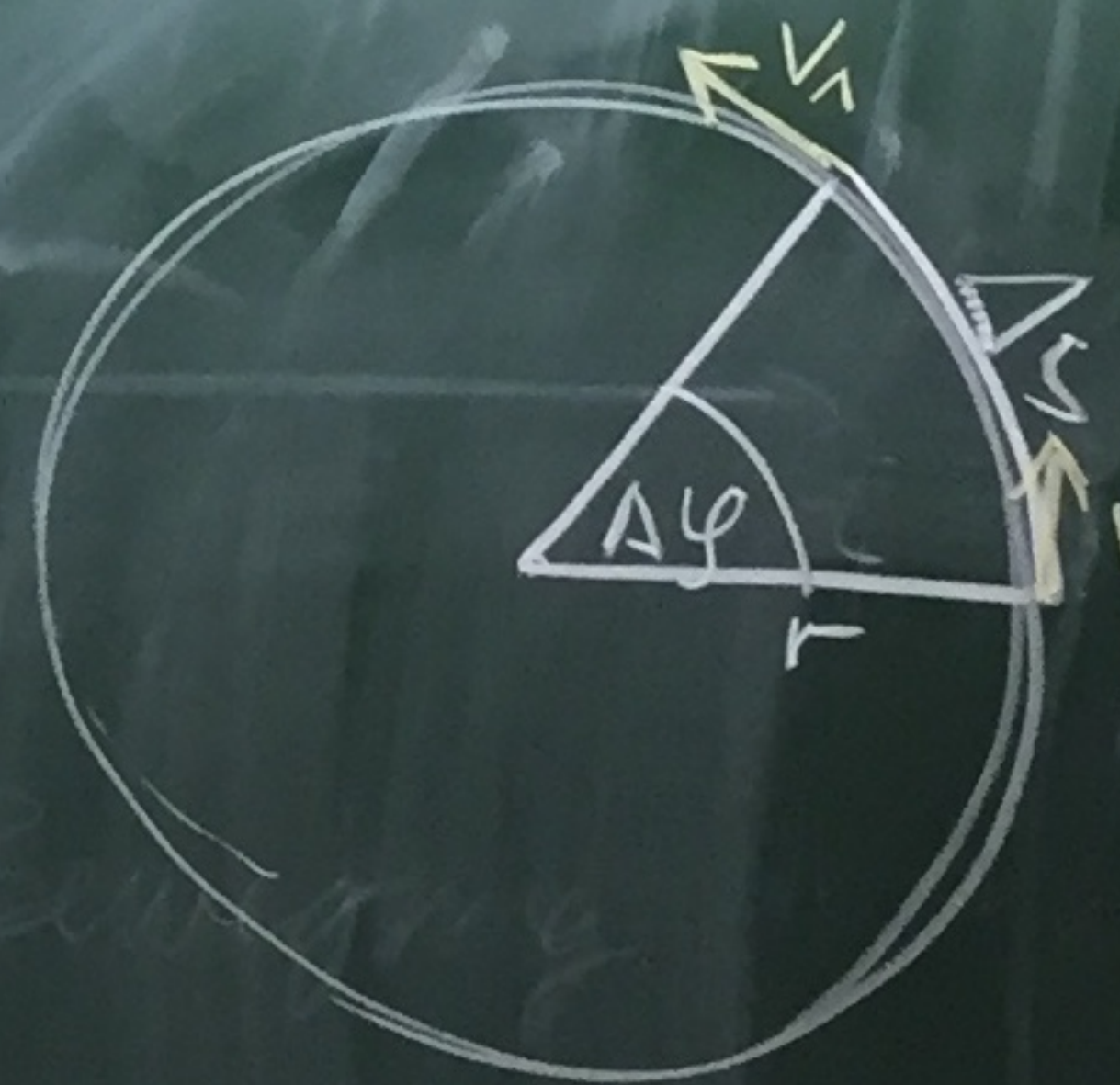
$$v = \frac{ds}{dt}$$

Kreisbewegung

$$\Delta \varphi = \frac{\Delta s}{r}$$

$$\omega = \frac{d\varphi}{dt} = \frac{\Delta s}{r \cdot dt} = \frac{v}{r}$$

$$[\omega] = \frac{\text{rad}}{\text{s}} = \frac{1}{\text{s}} = \text{s}^{-1}$$



$$T = \frac{\Delta t}{N} \quad [T] = \text{s}$$

$$f = \frac{N}{\Delta t} = \frac{1}{T}$$

$$[f] = \frac{1}{\text{s}} = \text{Hz}$$

komplette Umdrehung:

$$\omega = \frac{\Delta \varphi}{\Delta t} = \frac{2\pi}{T} = 2\pi f$$

$$\frac{\left(\frac{a}{b}\right)}{c} = \frac{a}{b \cdot c}$$

$$\frac{\left(\frac{a}{b}\right)}{\left(\frac{c}{d}\right)} = \frac{da}{bc}$$

$$F = m \cdot a$$

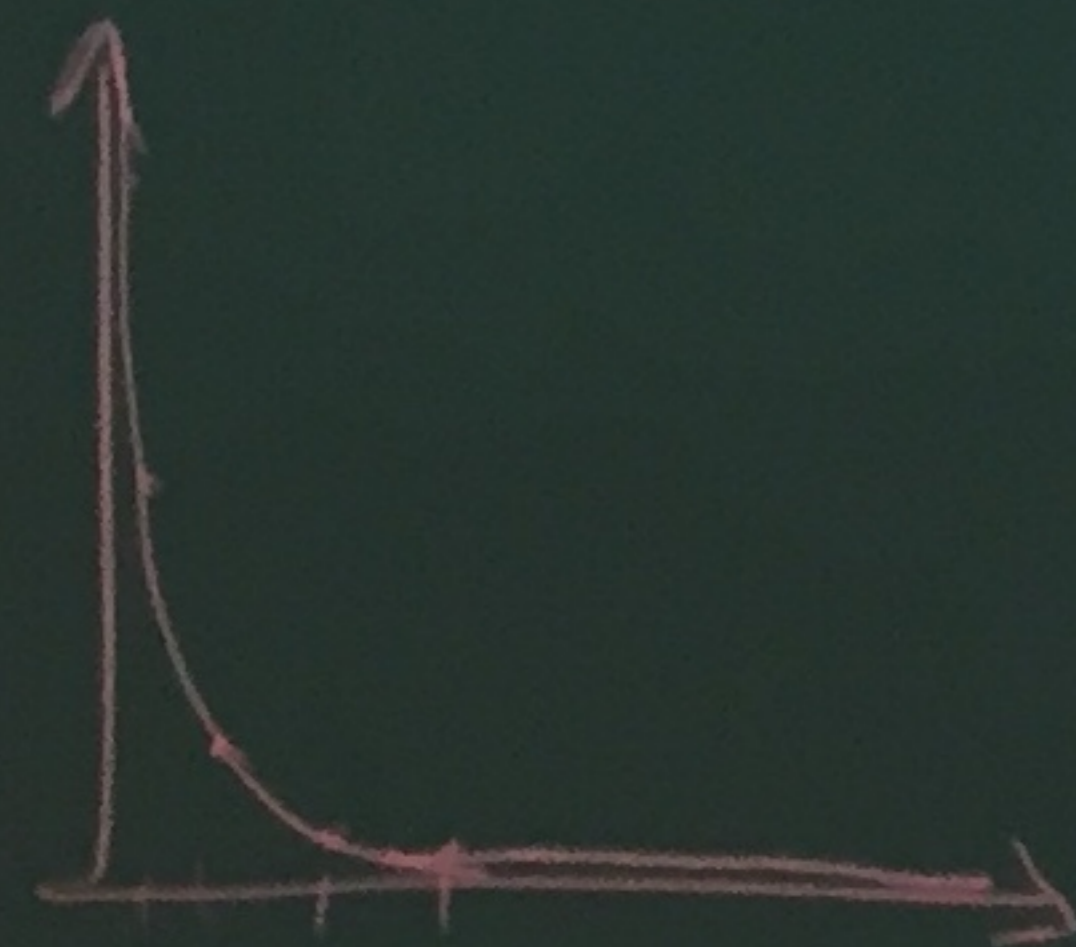
↑
Masse

$$[m] = \text{kg}$$

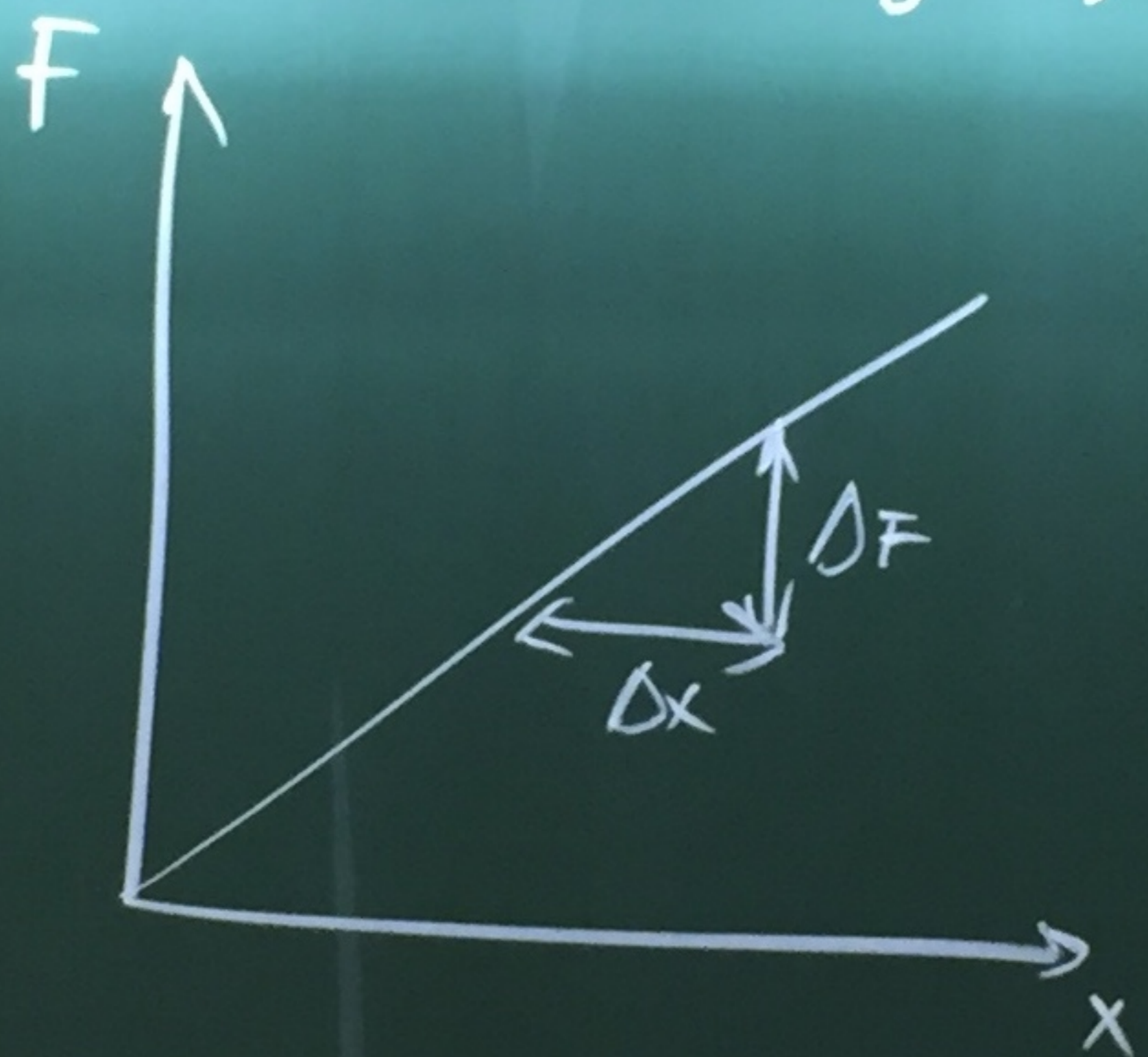
$$[F] = [m] \cdot [a] = \text{kg} \frac{\text{m}}{\text{s}^2} := \text{N}$$

$$F = \gamma \frac{m_1 m_2}{r^2} \longrightarrow F = m_1 g$$

$$F \sim \frac{1}{r^2}$$



Hooke'sches Gesetz



$$\frac{\Delta F}{\Delta x} = D$$