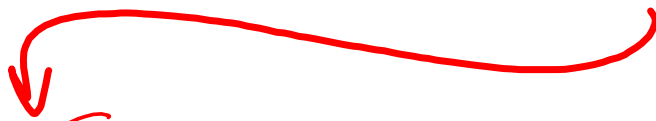


Størrelse = verdi · enhet



Grunnenheter

Energi $\Rightarrow E = 10 \text{ J}$ ← Joule $\leftarrow \text{kg} \cdot \frac{\text{m}^2}{\text{s}^2}$

Kraft $\Rightarrow F = 5 \text{ N}$ ← Newton $\leftarrow \text{kg} \cdot \frac{\text{m}}{\text{s}^2}$

$E = F \cdot s$ $\left[\text{kg} \cdot \frac{\text{m}}{\text{s}^2} \cdot \text{m} \right]$

Kraft \rightarrow $\text{kg} \cdot \frac{\text{m}}{\text{s}^2}$

avstand \rightarrow $\text{kg} \cdot \frac{\text{m}^2}{\text{s}^2}$

$\text{J} = \text{N} \cdot \text{m}$

SI-systemet



I en formel, så må alle være i samme system; f.eks. SI-systemet

Hvis ikke, må verdiene gjøres om

Ex:

Hastighet: $10 [m/s]$

Hvor mange meter har bilen kjørt på 2 sek

↳ Forkjellig system

Standardform \leftrightarrow Dekadisk prefiks
Engineeringform

Eks:

$10^9 \text{ Hz} = 10 \cdot 10^8 \text{ Hz}$

Annotations:
 - "enhet" (unit) points to Hz
 - "hastighet; datakom" (speed; datacom) points to 10^9
 - "Bruk heller dekadiske prefiks" (Use decimal prefixes instead) points to the conversion $10 \cdot 10^8$

Standardform

Eks:

$S = k \cdot 10^n$

Annotations:
 - "heltall (pos eller neg)" (integer (pos or neg)) points to n
 - "tall mellom 1 og 10" (number between 1 and 10) points to k

Eks:

$S_1 = 100 \text{ m} \rightarrow 1,00 \cdot 10^2 \text{ m}$

$S_2 = 0,1 \text{ m} \rightarrow 1,0 \cdot 10^{-1} \text{ m}$

Engineeringform

$100 \text{ m} (\Rightarrow 0,1 \text{ km})$

$20000 \text{ m} = 20 \text{ km} \quad \left(2,0 \cdot 10^4 \text{ m} \right)$

Annotations:
 - "Standardform" (Standard form) points to $2,0 \cdot 10^4 \text{ m}$

Eks på omregning fra km/h \Rightarrow m/s

$$\text{Eks: } 50 \frac{\text{km}}{\text{h}} = 50 \cdot \frac{1000 \text{ m}}{3600 \text{ s}}$$

$$1 \text{ h} = 60 \text{ min} = 60 \cdot 60 \text{ s} = 3600 \text{ s}$$

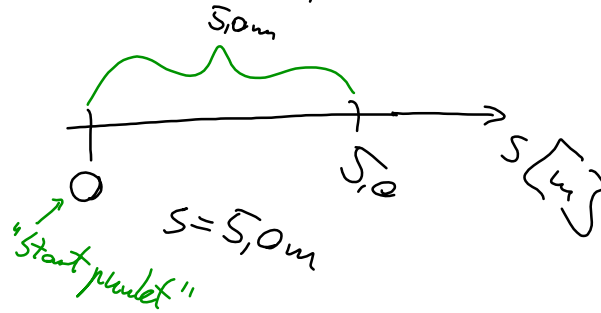
$$50 \cdot \frac{10^3 \text{ m}}{3,6 \cdot 10^3 \text{ s}} = \frac{50 \text{ m}}{3,6 \text{ s}} = 13,8 \text{ m/s} = 14 \text{ m/s}$$

Avstand

symbol : s

enhet : $[m]$

Eks: $s = 5,0 \text{ m}$



Startpunkt

$$s = s_1 - s_0 = 5,0 \text{ m}$$

$$= (5,0 - 0,0) \text{ m} = 5,0 \text{ m}$$

s_0 er startpunkt, som kan være annet enn 0



Som oftest settes $s_0 = 0,0$

$$s = s_1 - s_0 = 25 - 20 = 5 \text{ m}$$

s_0 kan ofte skyves, men da er den 0

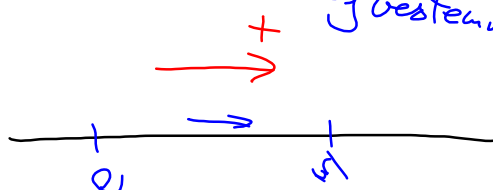
Avstanden er $s = 5,0 \text{ m}$

$$s = s_1 - s_0 = 5,0 - 0,0 = 5,0 \text{ m}$$

Avstanden er retningsbestemt

Vi bruker + eller -

Da må + retning bestemmes (du velger)



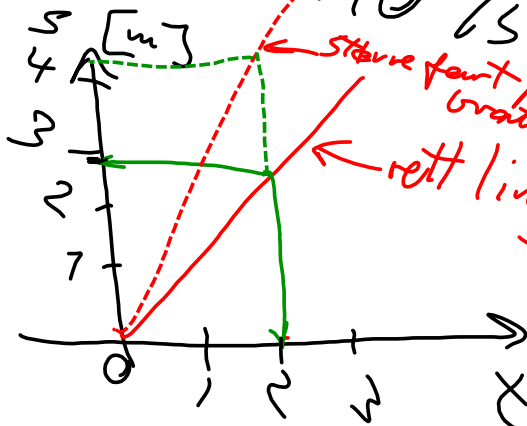
Fart

Symbol v

Enhet/Benevnelse: m/s

SI-enhet

Eks: $v = 10 \text{ m/s}$



$$v = \frac{30 \text{ m}}{20 \text{ s}} = 1,5 \text{ m/s}$$

$$v = \frac{412 \text{ m}}{20 \text{ s}} = 20,6 \text{ m/s}$$

Gjennomsnittsfart: $\bar{v} = \frac{\Delta s}{\Delta t}$ ← total avstand

Momentanfart: $v = \frac{\Delta s}{\Delta t}$ ← total tid

$\Delta \rightarrow$ tegnet brukes for Δ angir bestemte verdier
 \Rightarrow når $\Delta t \rightarrow 0$ går mot

