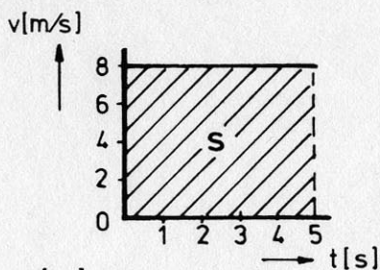


KINEMATICA

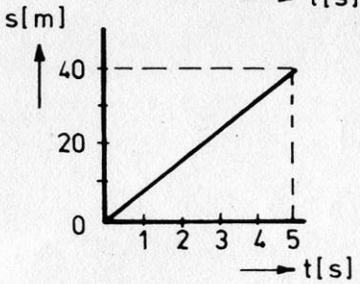
SYMBOOL	BETEKENIS	KOMT VAN	EENHEID
s	AFSTAND	SPATIUM	m
v	SNELHEID	VELOCITAS	m/s
t	TIJD	TEMPUS	s
a	VERSNELLING	ACCELERATIO	m/s ²

EENPARIGE BEWEGING

$$s = v \times t$$



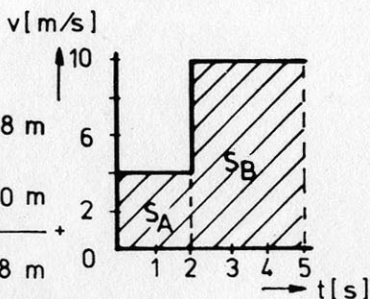
- s = v × t**
- s₁ = 8 × 1 = 8 m
 - s₂ = 8 × 2 = 16 m
 - s₃ = 8 × 3 = 24 m
 - s₄ = 8 × 4 = 32 m
 - s₅ = 8 × 5 = 40 m



TWEE SNELHEDEN

$$s = v \times t$$

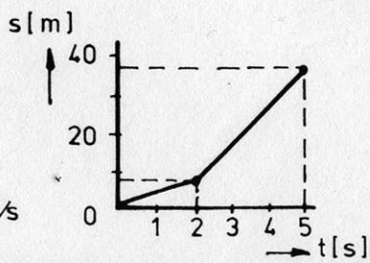
- S_A = 4 $\frac{m}{s}$ × 2 s = 8 m
- S_B = 10 $\frac{m}{s}$ × 3 s = 30 m
- S totaal = 38 m



GEMIDDELTE SNELHEID

$$v_{gem} = \frac{s_{totaal}}{t}$$

$$v_{gem} = \frac{38 \text{ m}}{5 \text{ s}} = 7,6 \text{ m/s}$$



EENPARIG VERSNELDE BEWEGING

zonder beginsnelheid

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

$$a = \frac{2 \text{ m/s}}{1 \text{ s}} = 2 \text{ m/s}^2$$

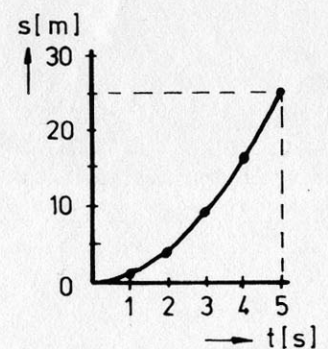
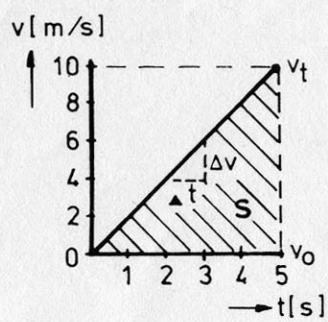
$$v_t = a \times t$$

$$v_t = 2 \text{ m/s}^2 \times 5 \text{ s}$$

$$v_t = 10 \text{ m/s}$$

$$s_t = \frac{1}{2} a t^2$$

- s₁ = $\frac{1}{2} \cdot 2 \cdot 1^2 = 1 \text{ m}$
- s₂ = $\frac{1}{2} \cdot 2 \cdot 2^2 = 4 \text{ m}$
- s₃ = $\frac{1}{2} \cdot 2 \cdot 3^2 = 9 \text{ m}$
- s₄ = $\frac{1}{2} \cdot 2 \cdot 4^2 = 16 \text{ m}$
- s₅ = $\frac{1}{2} \cdot 2 \cdot 5^2 = 25 \text{ m}$



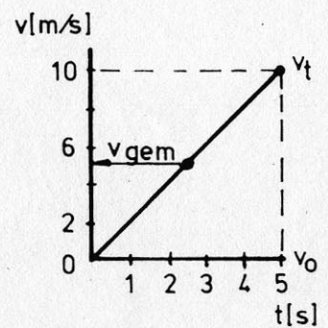
GEMIDDELTE SNELHEID

$$v_{gem} = \frac{v_0 + v_t}{2}$$

$$v_{gem} = \frac{0 + 10}{2} = 5 \text{ m/s}$$

$$s = v_{gem} \times t$$

$$s = 5 \text{ m/s} \times 5 \text{ s} = 25 \text{ m}$$



EENPARIG VERSNELDE BEWEGING

met beginsnelheid

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

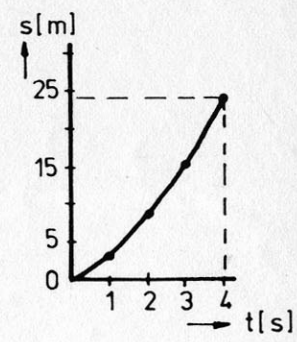
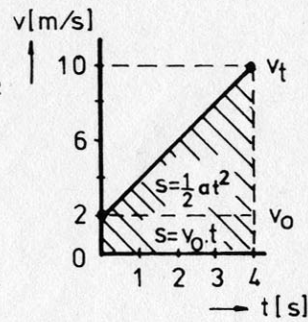
$$a = \frac{(10-2) \text{ m/s}}{4 \text{ s}} = 2 \text{ m/s}^2$$

$$v_t = v_0 + a t$$

$$v_t = 2 + 2 \cdot 4 = 10 \text{ m/s}$$

$$s_t = v_0 \cdot t + \frac{1}{2} a t^2$$

- s₁ = 2.1 + $\frac{1}{2} \cdot 2 \cdot 1^2 = 3 \text{ m}$
- s₂ = 2.2 + $\frac{1}{2} \cdot 2 \cdot 2^2 = 8 \text{ m}$
- s₃ = 2.3 + $\frac{1}{2} \cdot 2 \cdot 3^2 = 15 \text{ m}$
- s₄ = 2.4 + $\frac{1}{2} \cdot 2 \cdot 4^2 = 24 \text{ m}$



GEMIDDELTE SNELHEID

$$v_{gem} = \frac{v_0 + v_t}{2}$$

$$v_{gem} = \frac{2 + 10}{2} = 6 \text{ m/s}$$

$$s = v_{gem} \times t$$

$$s = 6 \text{ m/s} \times 4 \text{ s} = 24 \text{ m}$$