ACCELERAZIONE

$$\vec{a} = \frac{\Delta \vec{v}}{\Delta t} \qquad a_m = \frac{\Delta v}{\Delta t} = \frac{v_f - v_i}{t_f - t_i} \left[\frac{m}{s^2}\right]$$

TABELLA VELOCITÀ - TEMPO

Tempo(s)	0	20	40	60	80	100	120	140	160
velocità(km/h)	36	54	58	63	54	36	36	30	0
	0	1	2	3	4	5	6	7	8

nei primi 20 s : $a_m = \frac{\Delta v}{\Delta t} = \frac{v_1 - v_0}{t_1 - t_0} = \frac{18}{3.6}\frac{m}{s} \cdot \frac{1}{20s} = 0{,}25 \frac{m}{s^2}$

$1\,h = 3600\,s \qquad 36 \frac{Km}{h} = 36 \times \frac{1000\,m}{3600\,s} = \frac{36}{3{,}6}\frac{m}{s} = 10\frac{m}{s}$

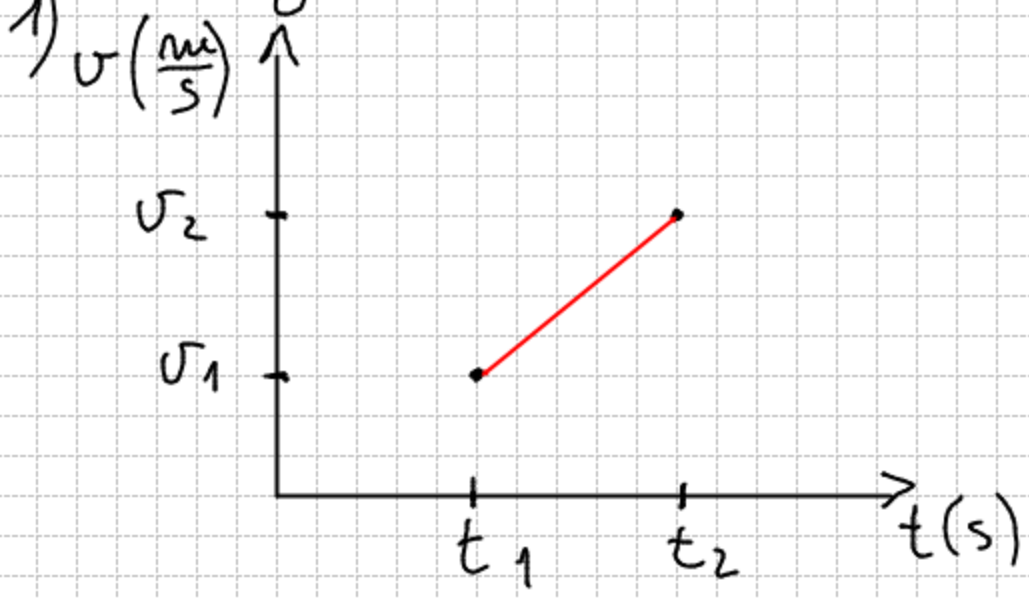
$a_m = \frac{\Delta v}{\Delta t}$ quando $\Delta t \to 0$ l'accelerazione media "diventa" l'ACCELERAZIONE ISTANTANEA

Un moto con ACCELERAZIONE ISTANTANEA COSTANTE è detto MOTO UNIFORMEMENTE ACCELERATO

1) ACCELERAZIONE POSITIVA : moto ACCELERATO
2) ACCELERAZIONE NEGATIVA : moto DECELERATO
3) ACCELERAZIONE NULLA : moto UNIFORME.

Grafico VELOCITÀ - TEMPO

1)

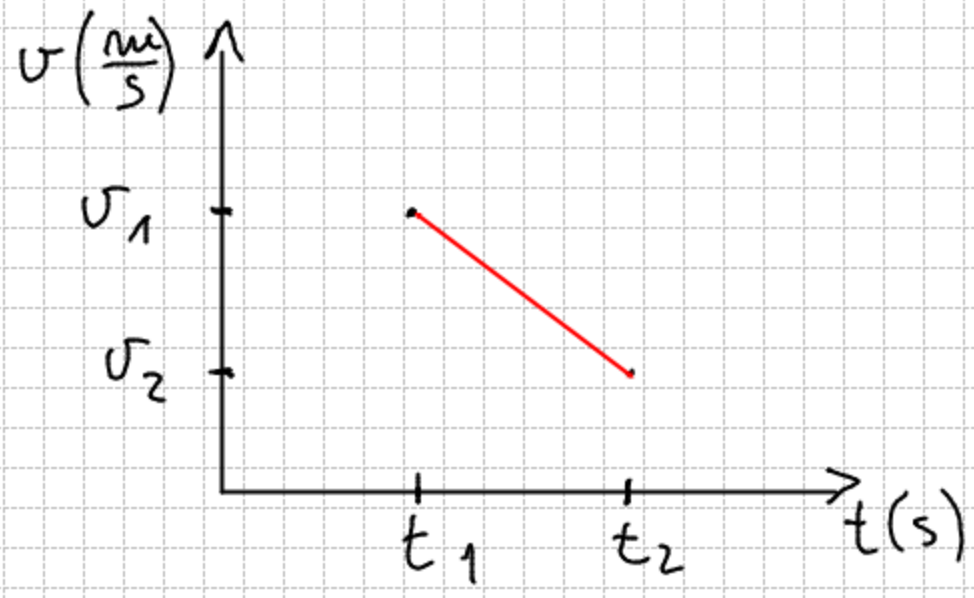


$a_m > 0 \Leftrightarrow \Delta v > 0$

$v_2 - v_1 > 0 \quad v_2 > v_1$

MOTO ACCELERATO

2)

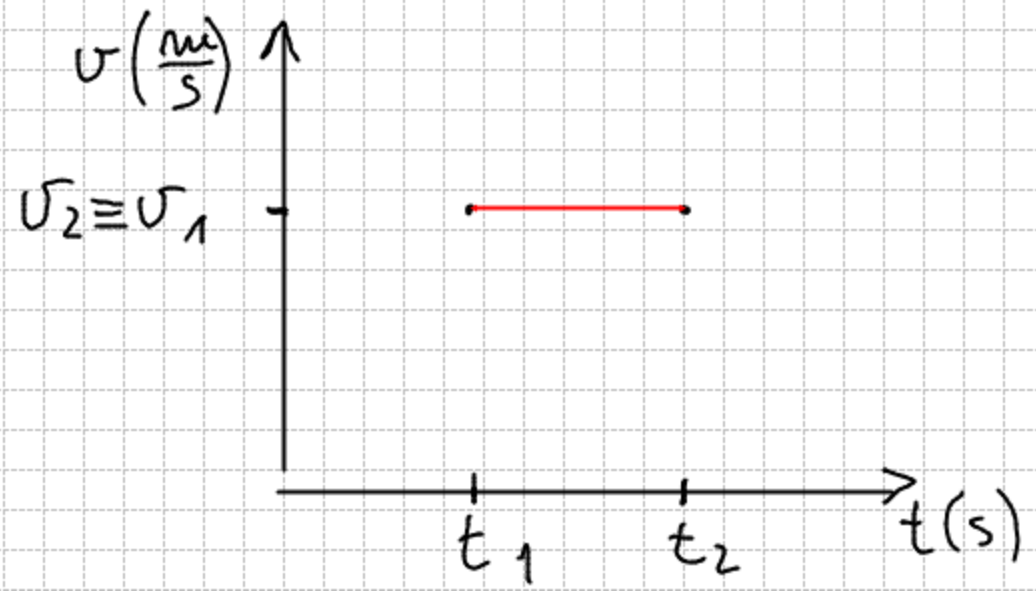


$a_m < 0 \Leftrightarrow \Delta v < 0$

$v_2 - v_1 < 0 \quad v_2 < v_1$

MOTO DECELERATO.

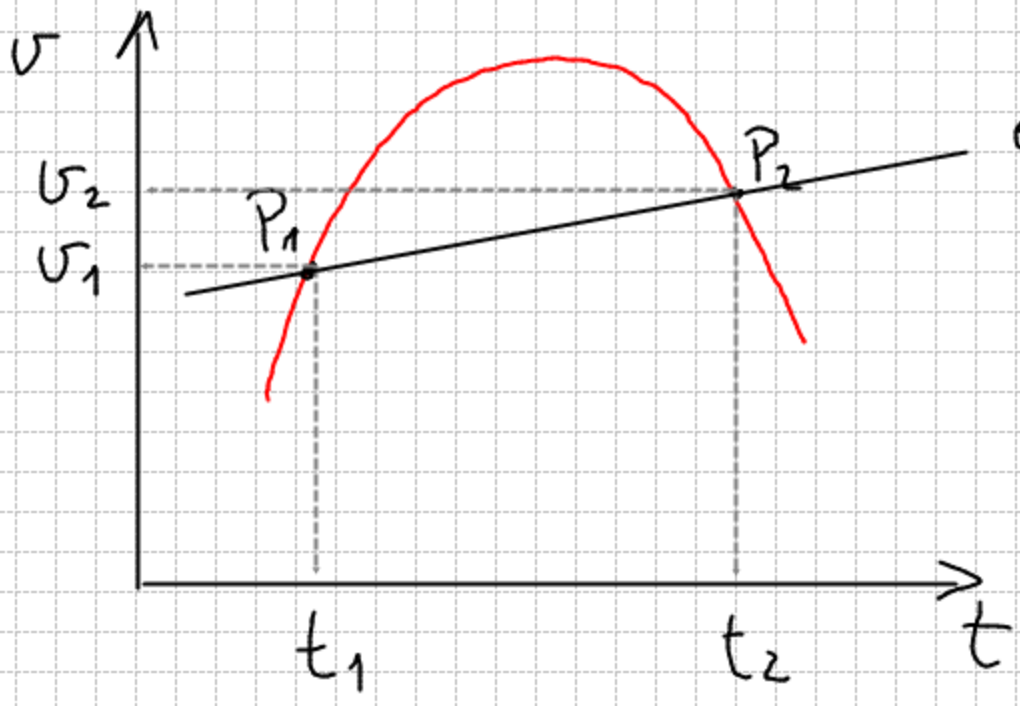
3)



$a_m = 0 \Leftrightarrow \Delta v = 0$

$v_2 - v_1 = 0 \quad v_1 \equiv v_2$

MOTO UNIFORME

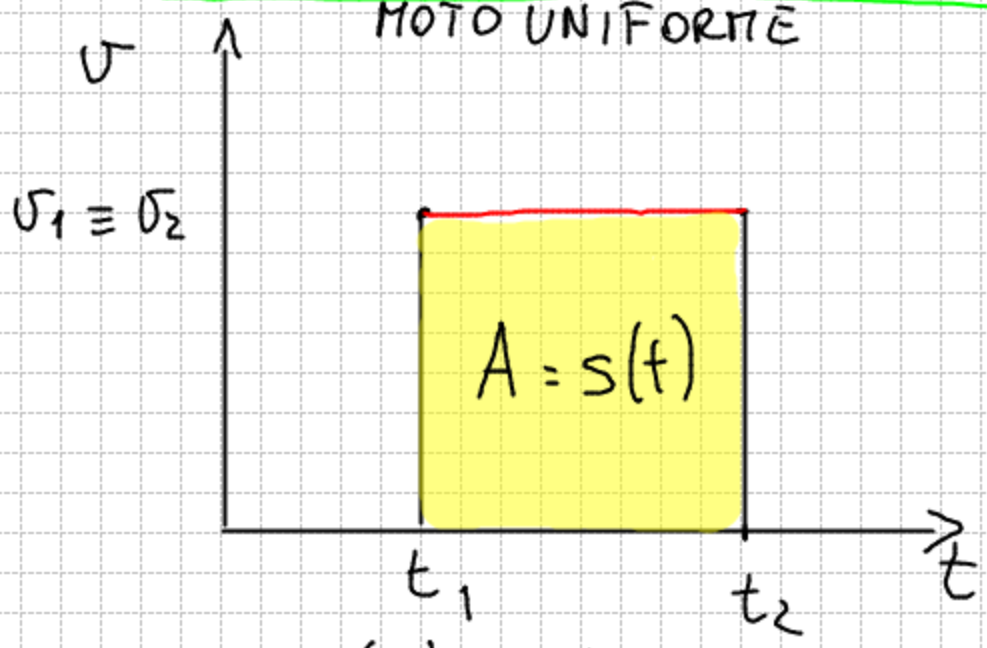


$$a_m = \frac{\Delta v}{\Delta t} = \frac{v_2 - v_1}{t_2 - t_1}$$

$$v = at$$

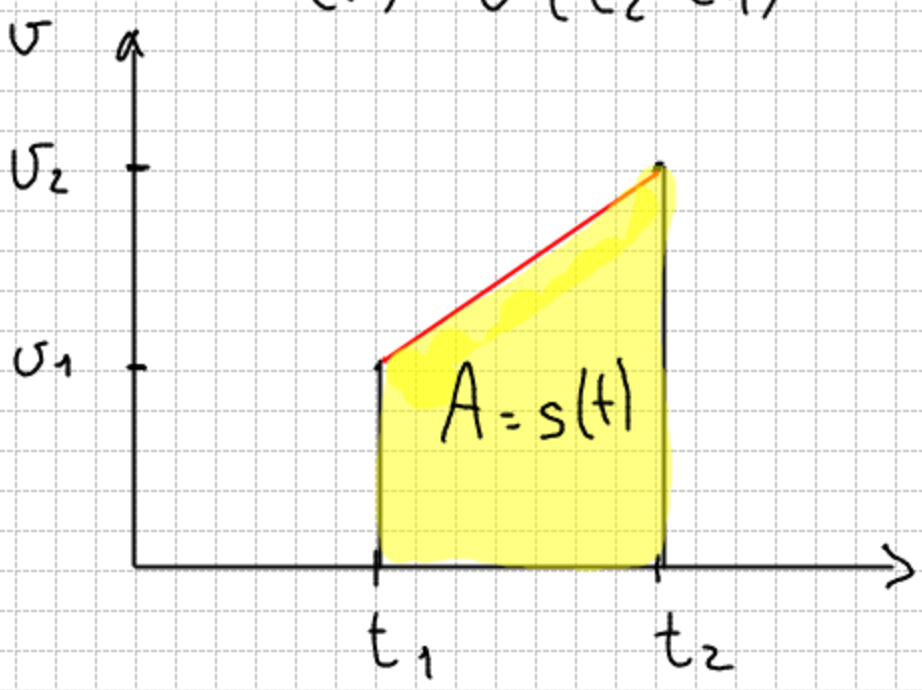
In un grafico velocità-tempo, l'area al di sotto del grafico rappresenta lo spazio percorso

MOTO UNIFORME



$$s(t) = v\Delta t$$

$$s(t) = v(t_2 - t_1)$$



$$A = \frac{1}{2}(v_1 + v_2)(t_2 - t_1)$$

$$s(t) = \frac{1}{2}(v_1 + v_2)(t_2 - t_1)$$

$$\Delta v = a\Delta t$$

$$s(t) = \frac{1}{2} a \Delta t^2$$