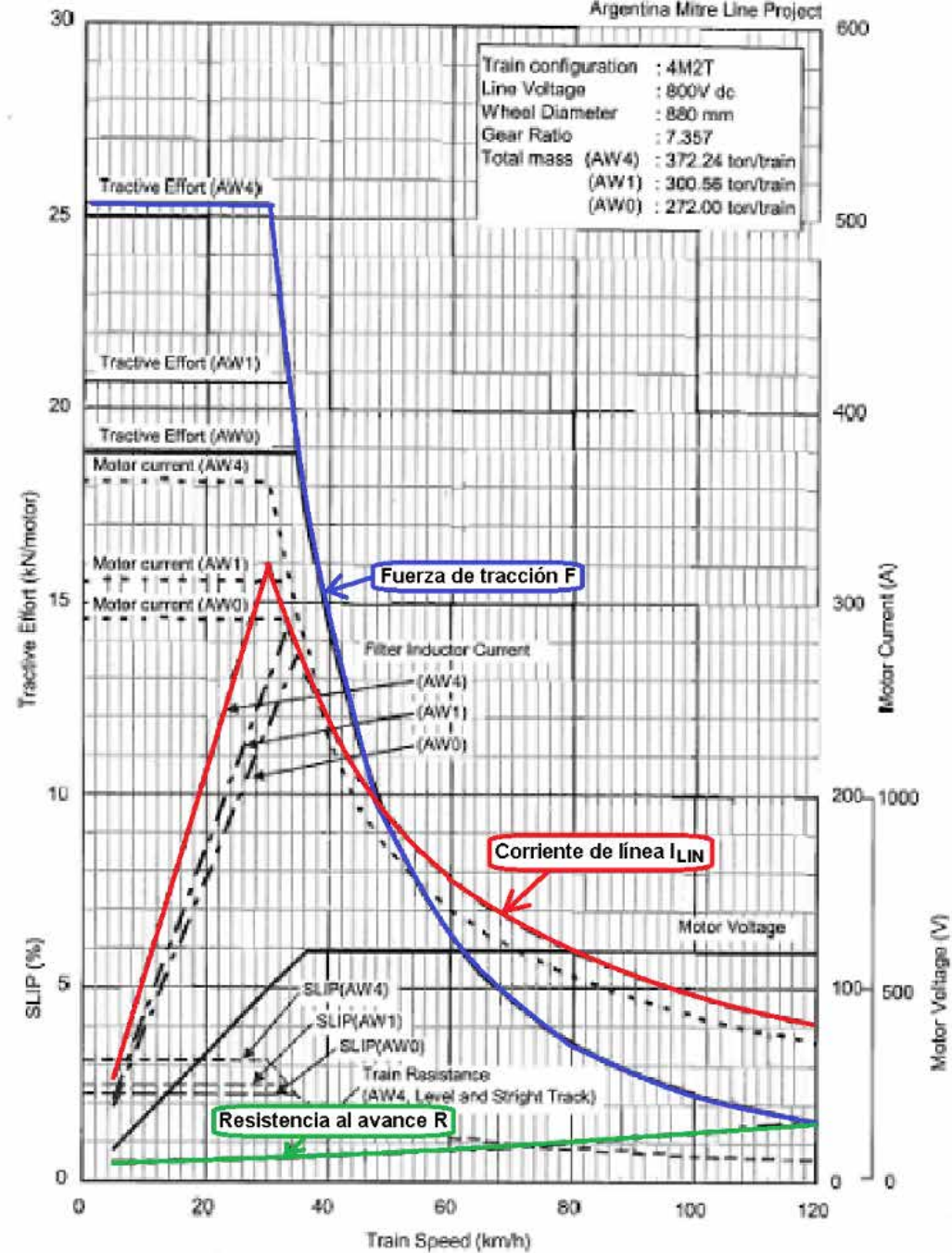


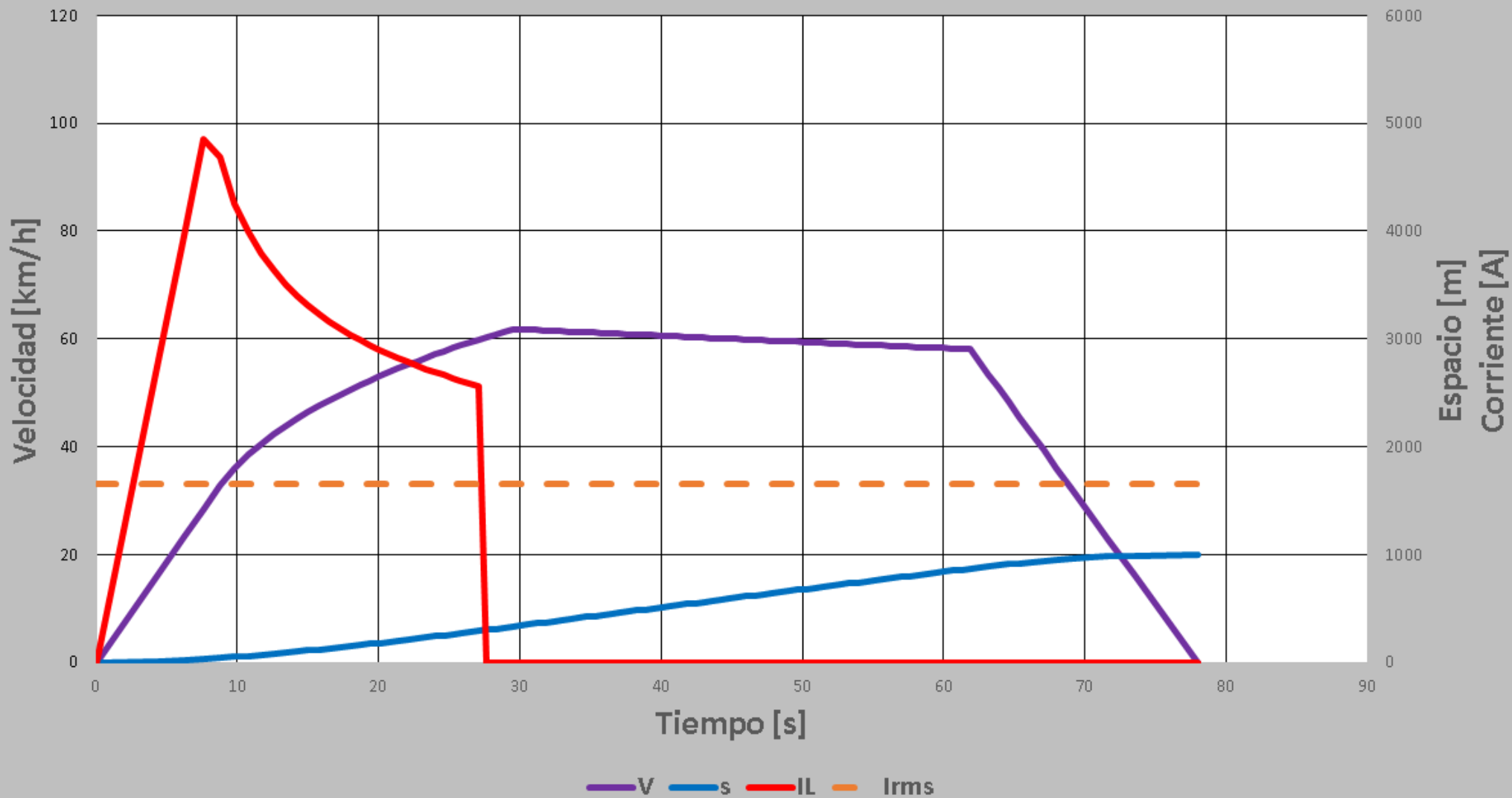
CURVAS DE MARCHA DE TRENES

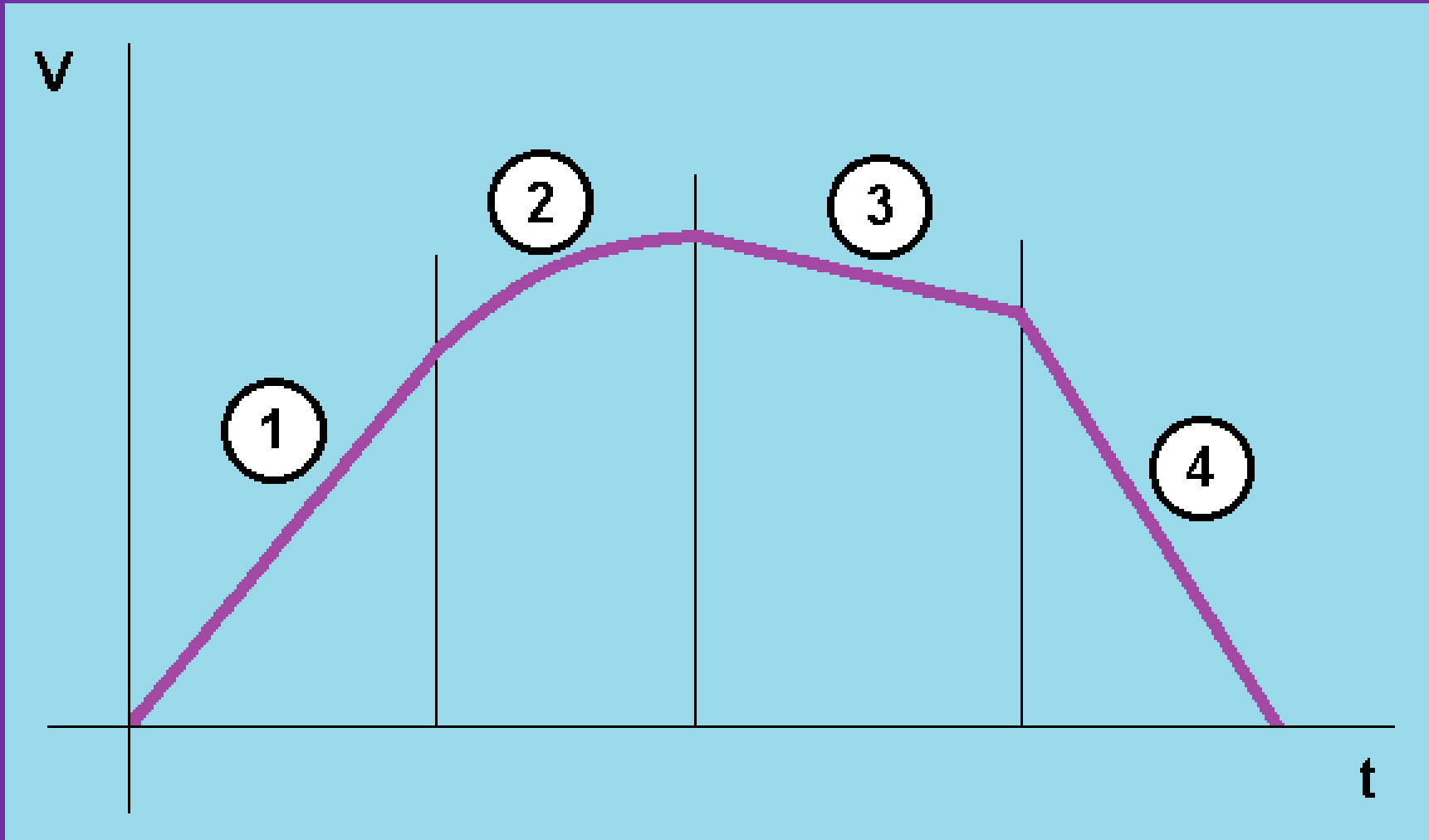
Powering Performance

Argentina Mitre Line Project

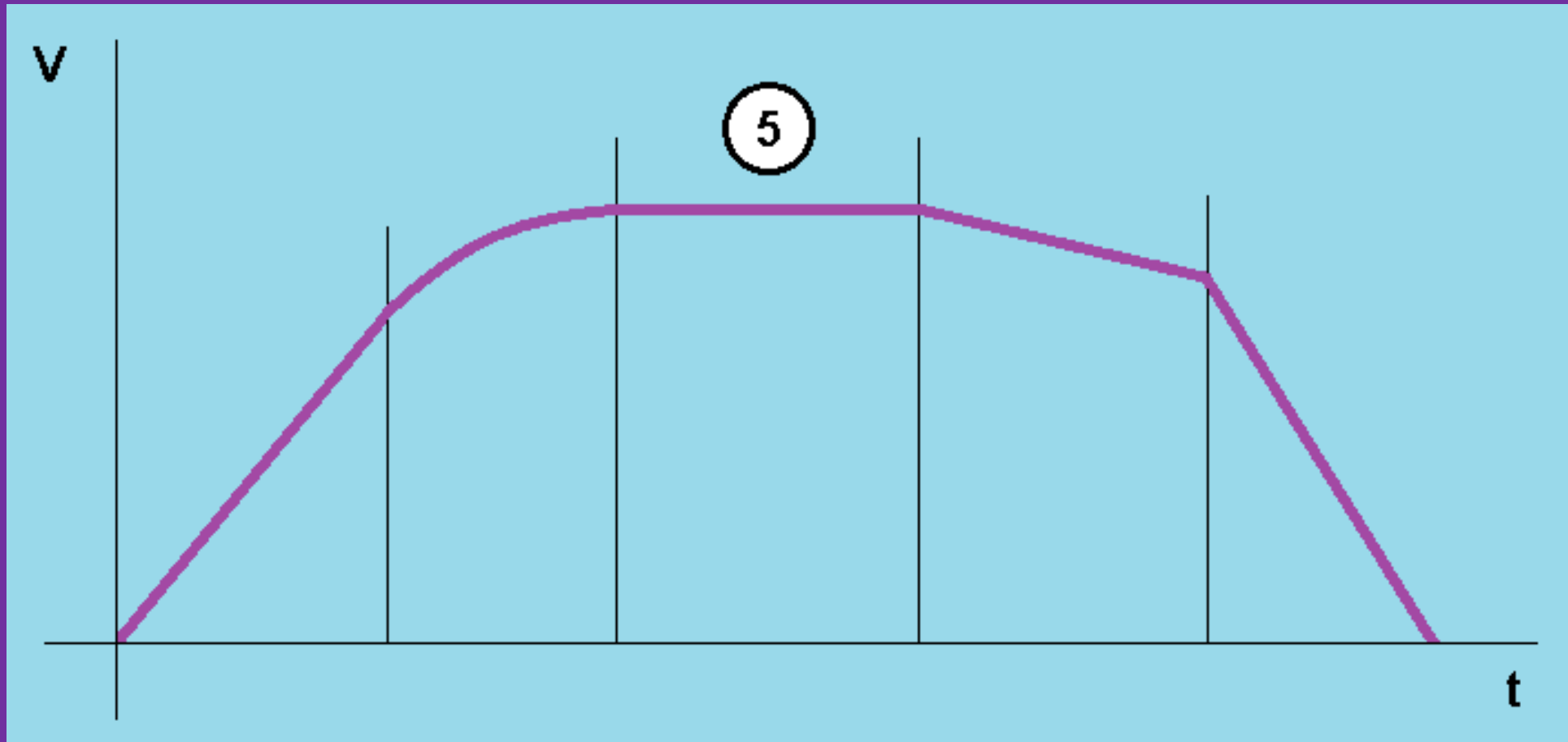


CURVAS DE MARCHA
COCHES CSR LINEA MITRE
TRAMO DE 1000 m





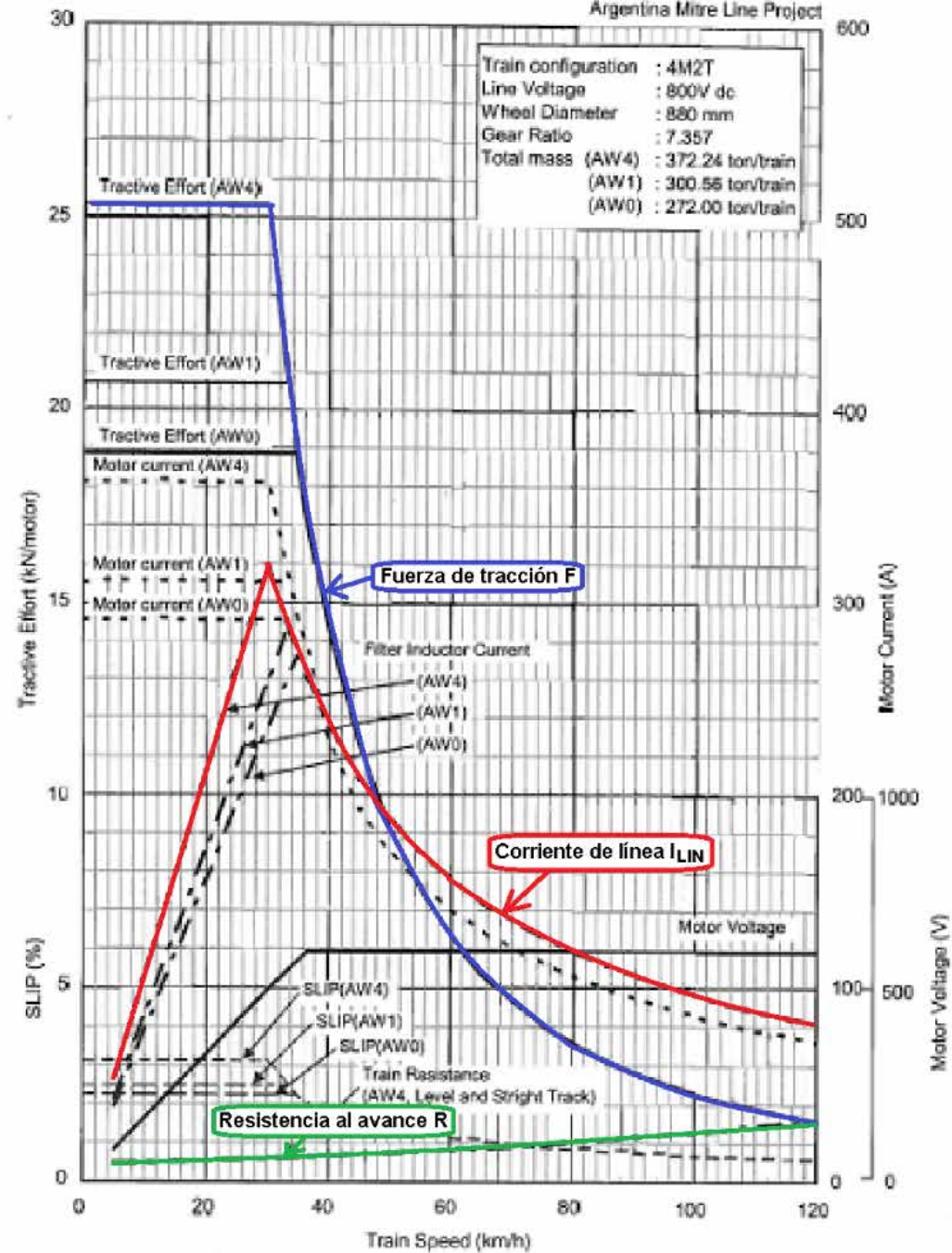
Curva de velocidad en función del tiempo



Etapa de marcha a velocidad constante

Powering Performance

Argentina Mitre Line Project



$$F = m \times a$$

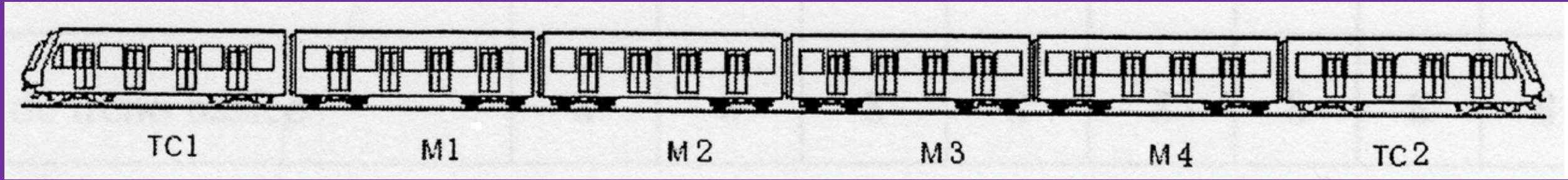
$$1 \text{ N} = 1 \text{ kg} \times 1 \text{ m/s/s}$$

$$1 \text{ kgf} = 1 \text{ kg} \times 9.8 \text{ m/s/s}$$

$$\textcircled{\text{R}} \quad 9.8 \text{ N} = 1 \text{ kgf}$$

1 daN @1 kgf

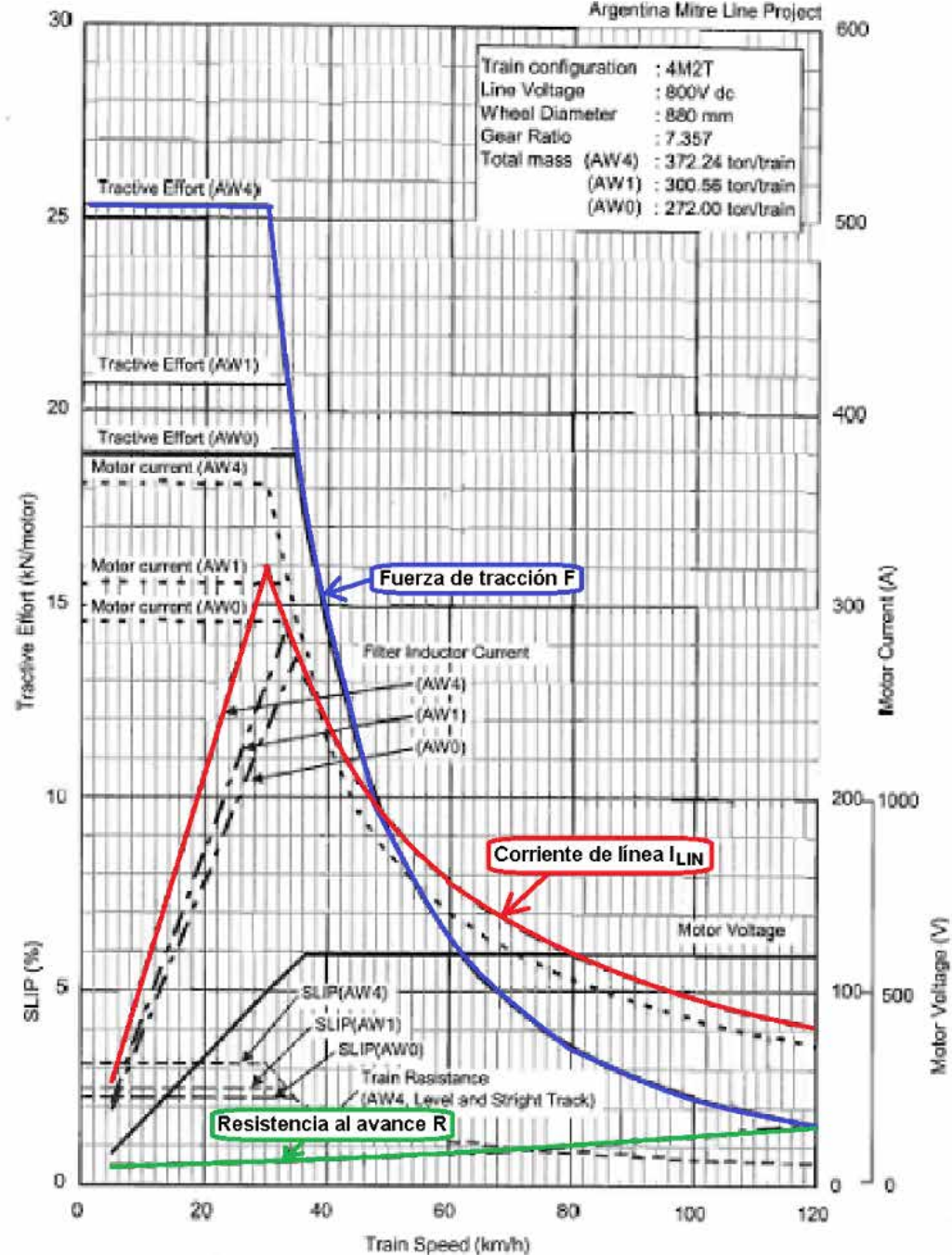
1 kN @100 kgf

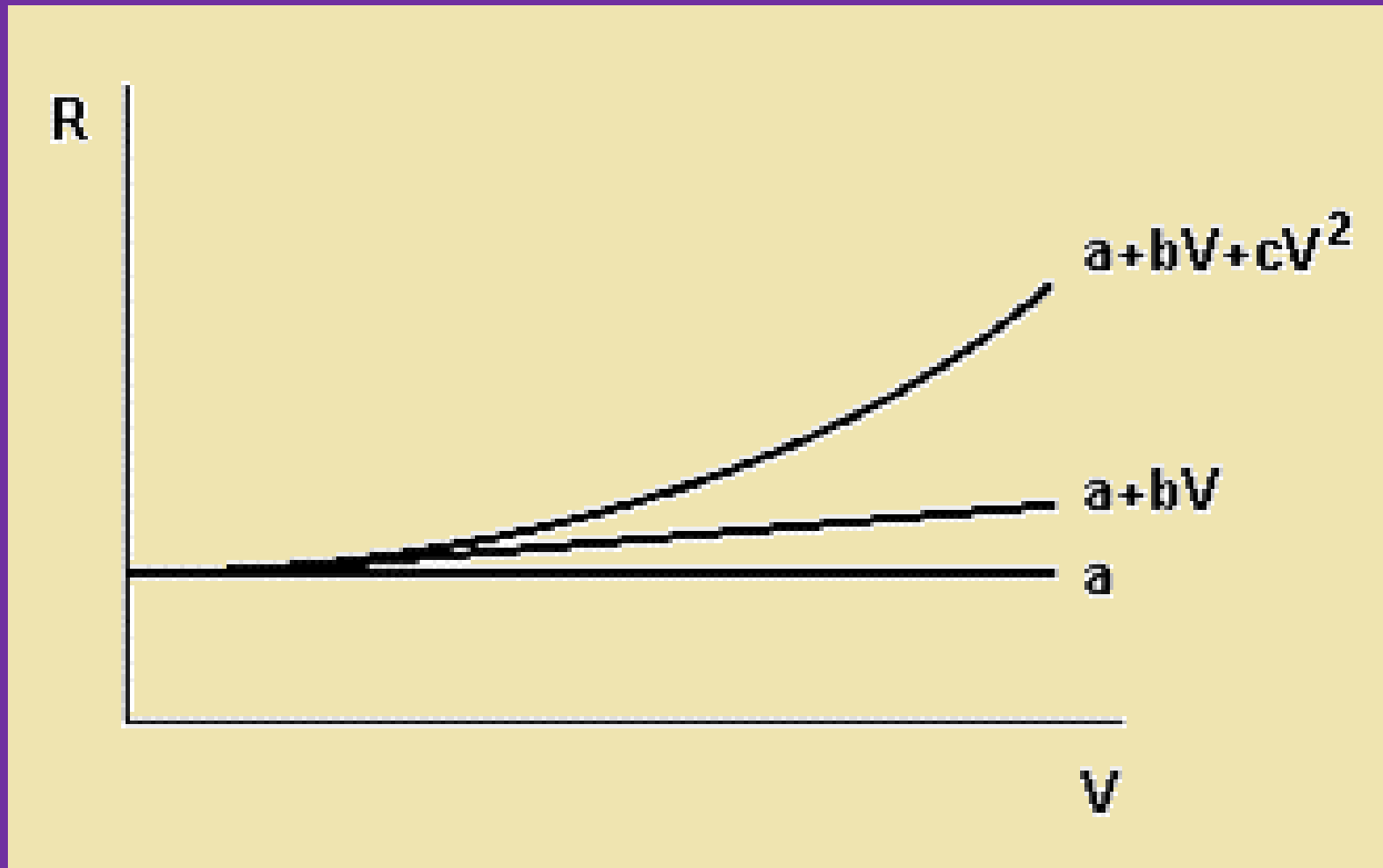


Formación línea Mitre

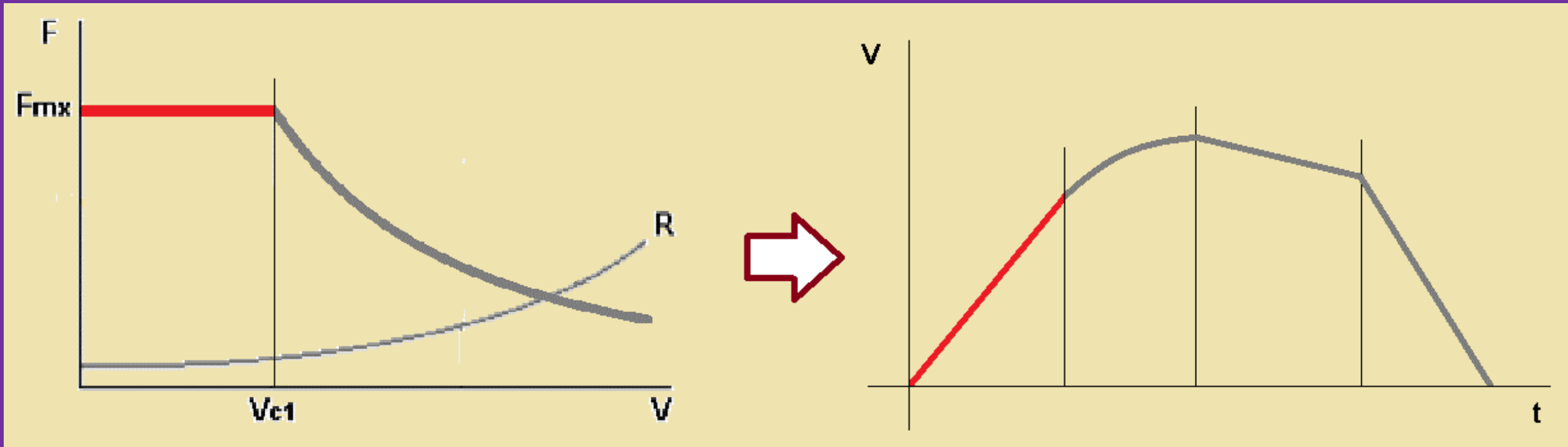
Powering Performance

Argentina Mitre Line Project

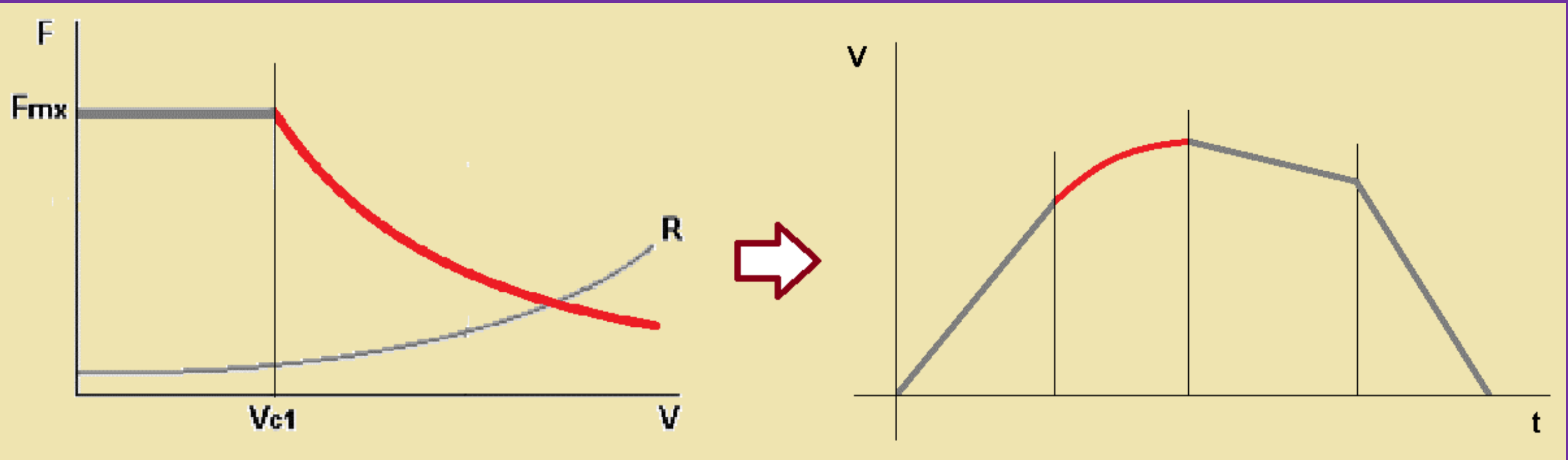




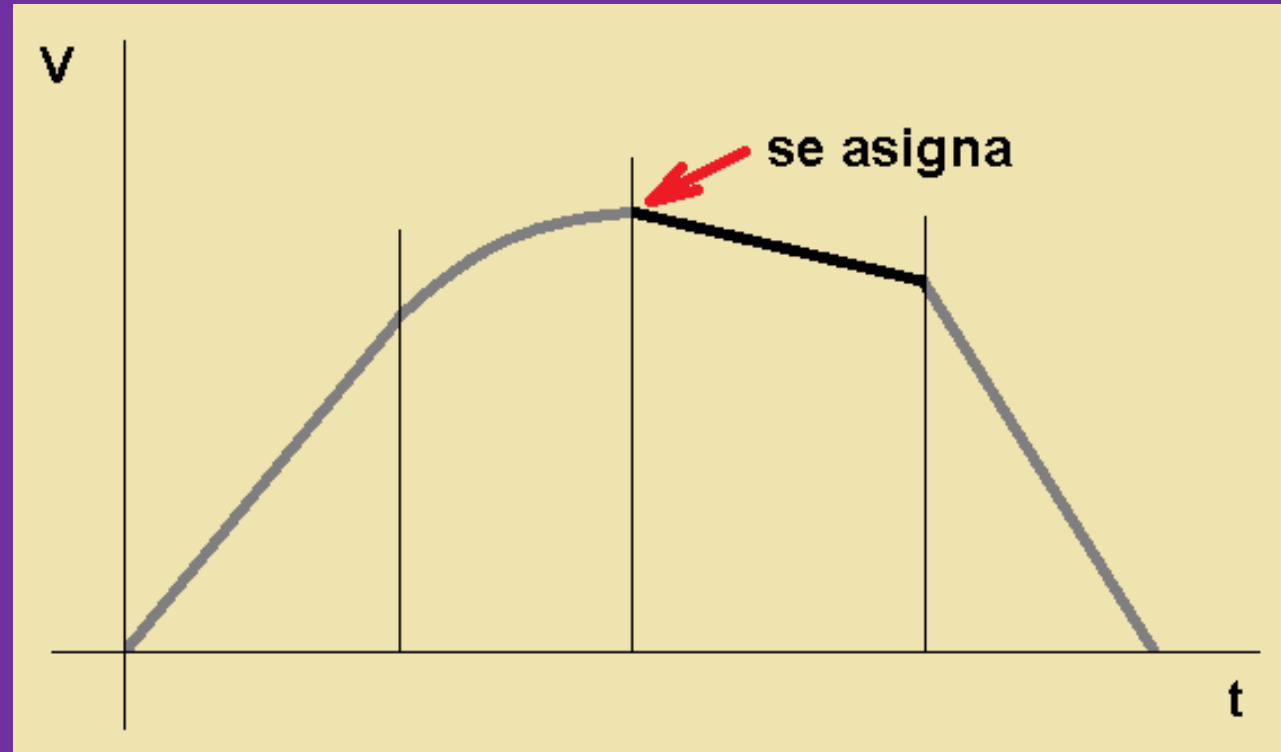
Resistencia al avance



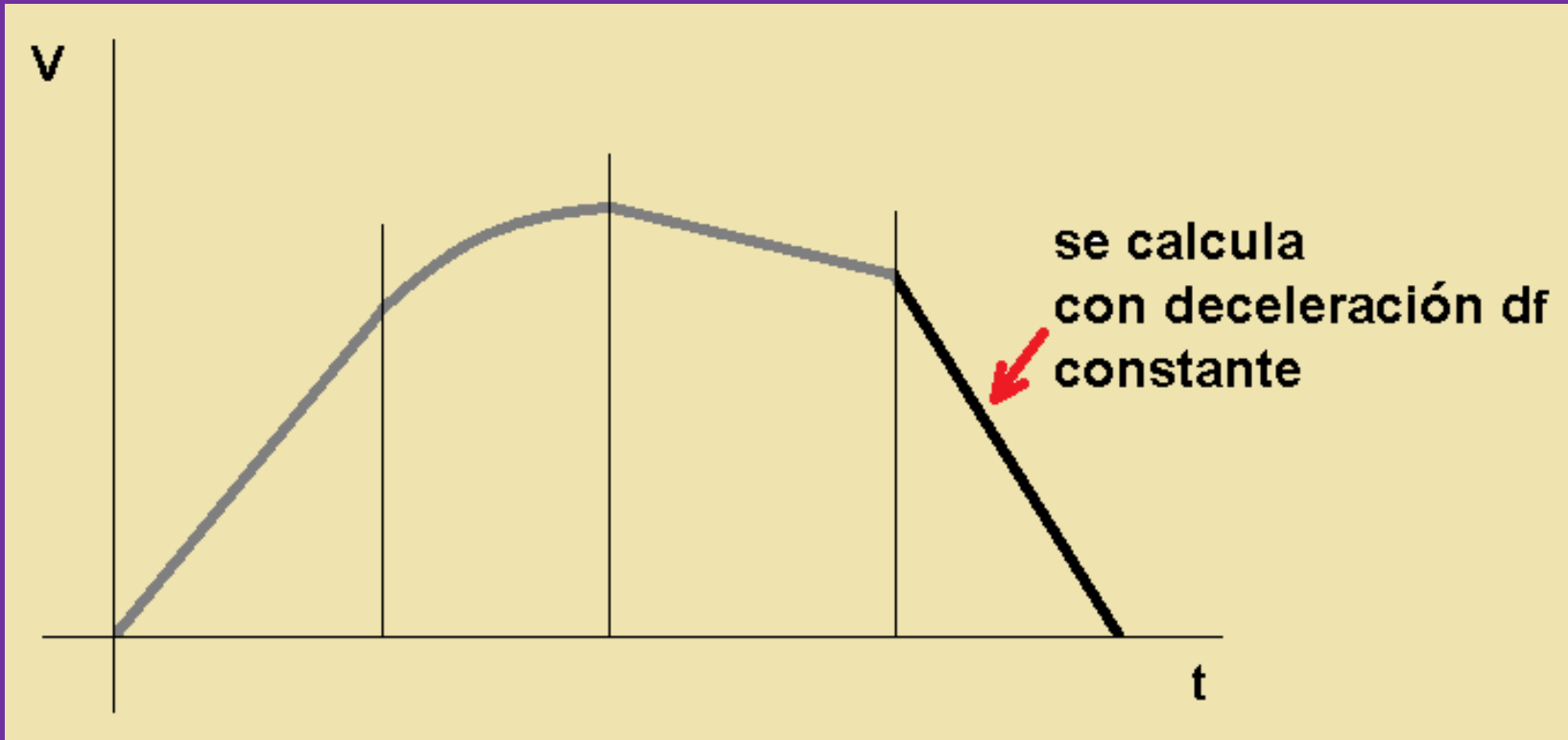
Arranque con fuerza de tracción constante



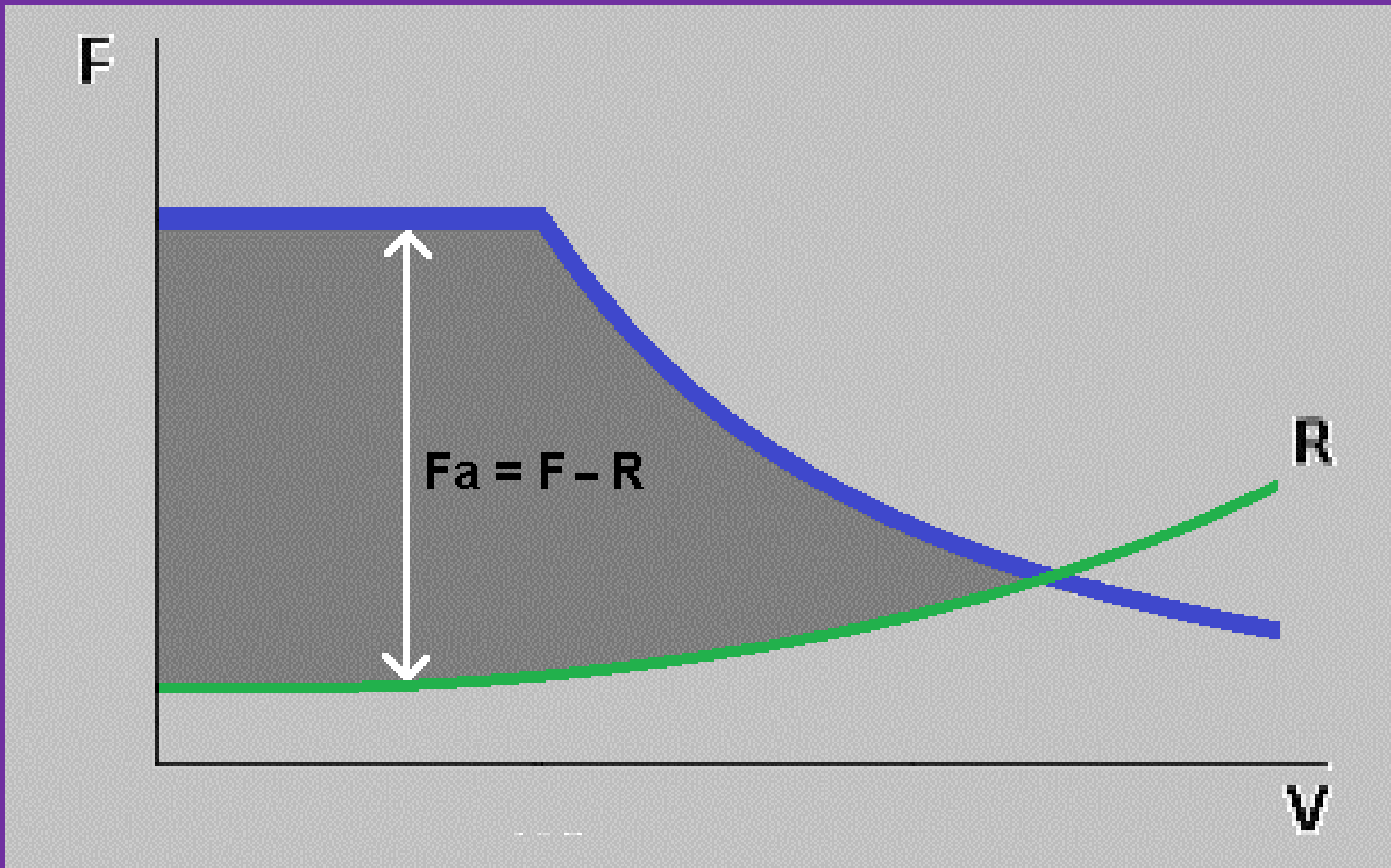
**Arranque con fuerza de tracción
inversamente proporcional a la velocidad**



Velocidad de inicio de deriva



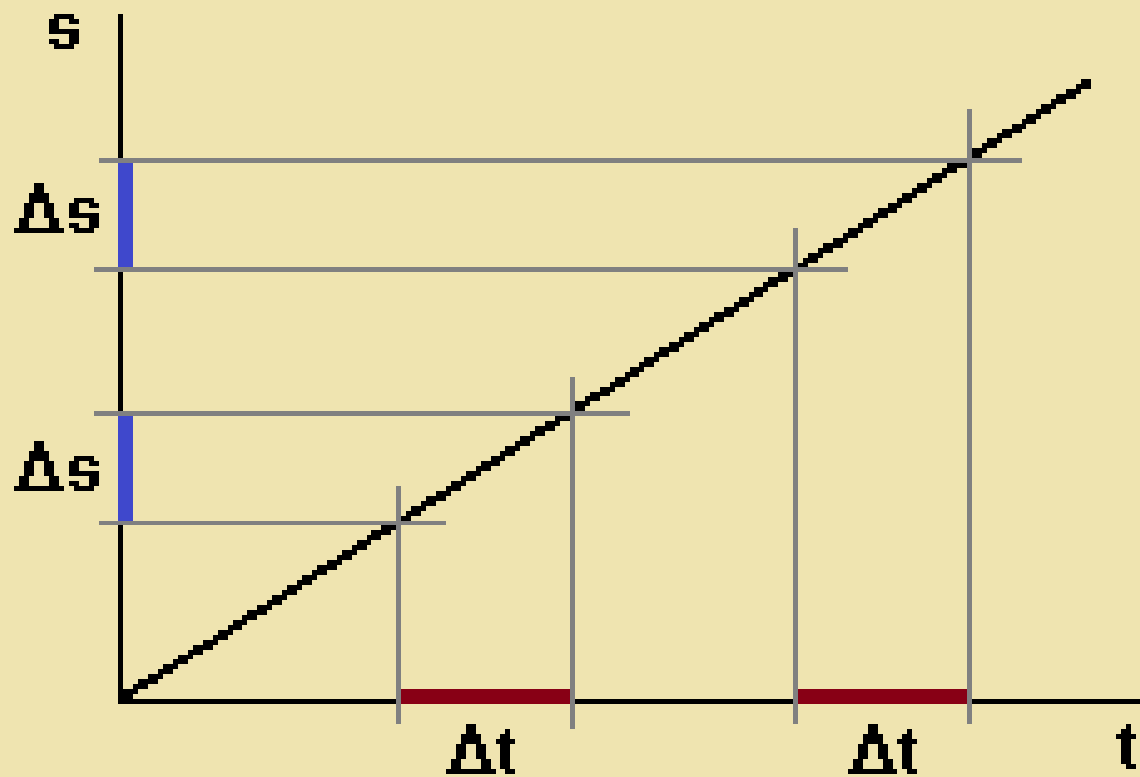
Frenado



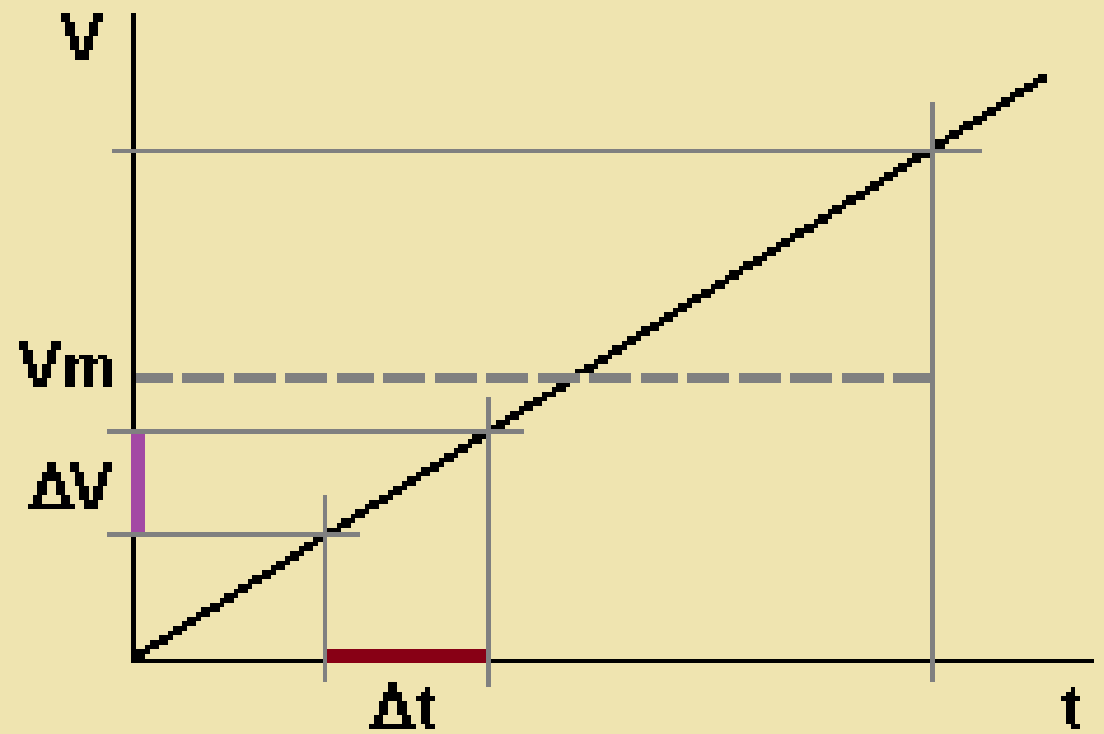
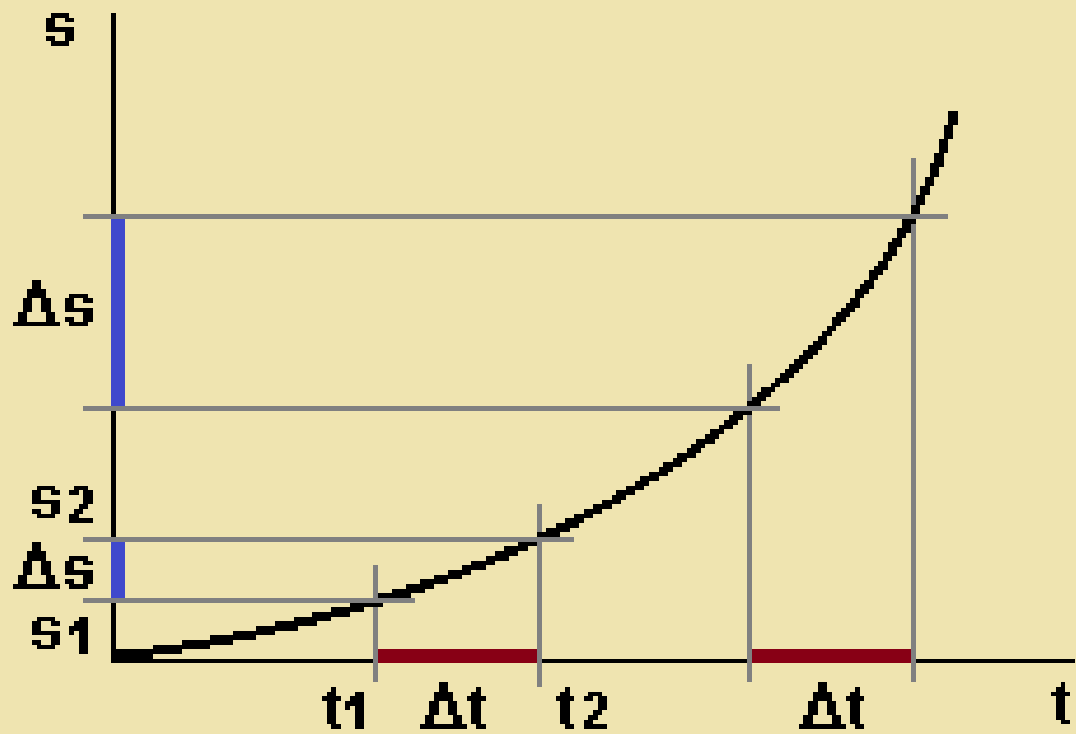
Determinación de la fuerza de aceleración

$$\mathbf{F} = m \times \mathbf{a}$$

$$\mathbf{a}_m = \frac{\mathbf{F}}{m}$$

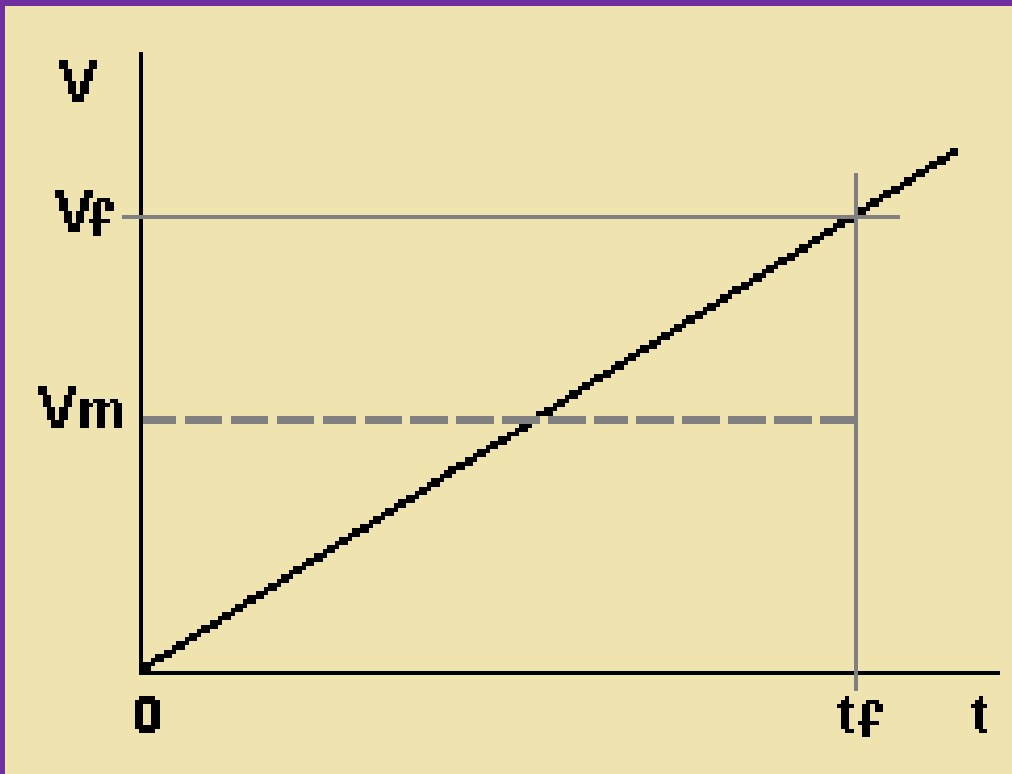


Movimiento uniforme: $V = \Delta s / \Delta t = \text{cte}$

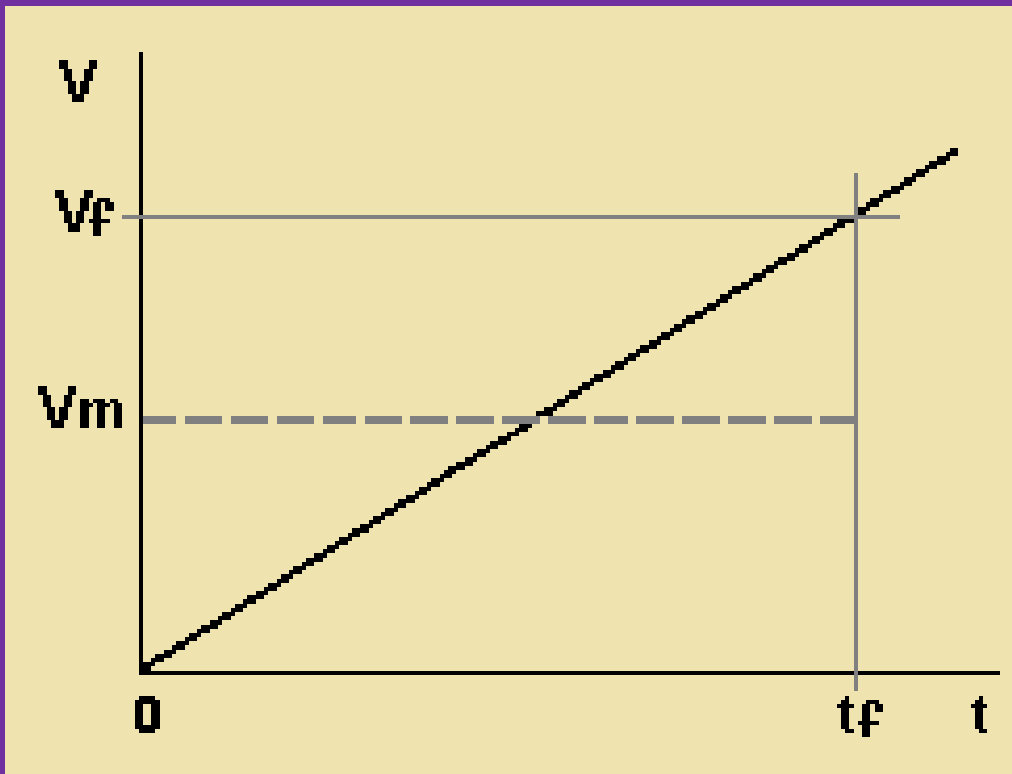


Movimiento uniformemente variado: $a_m = DV / Dt = cte$

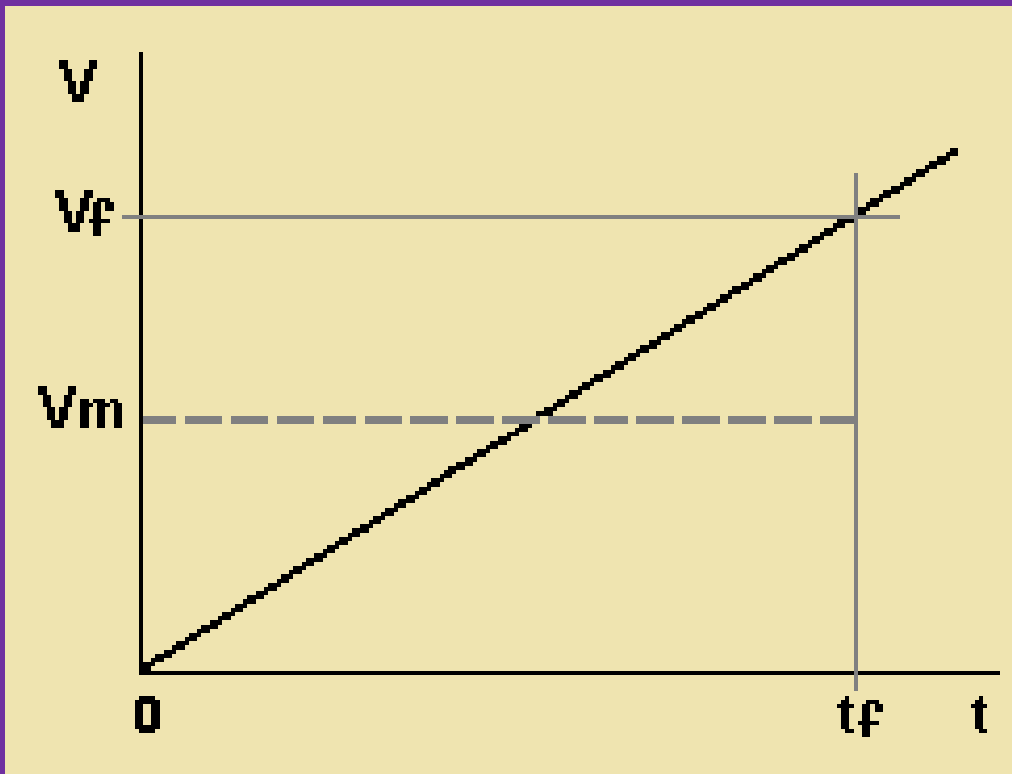
$$\Delta t = \frac{V_2 - V_1}{a_m}$$



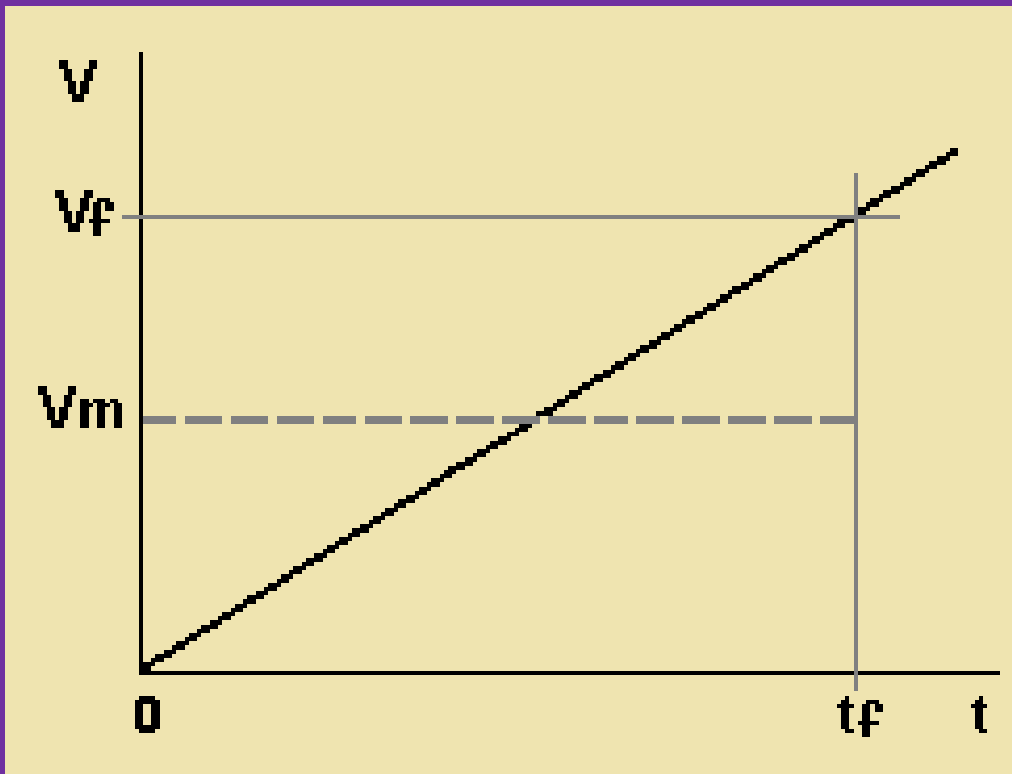
$$s = V_m t_f$$



$$V_m = \frac{V_f}{2}$$



$$t_f = \frac{V_f}{a_m}$$

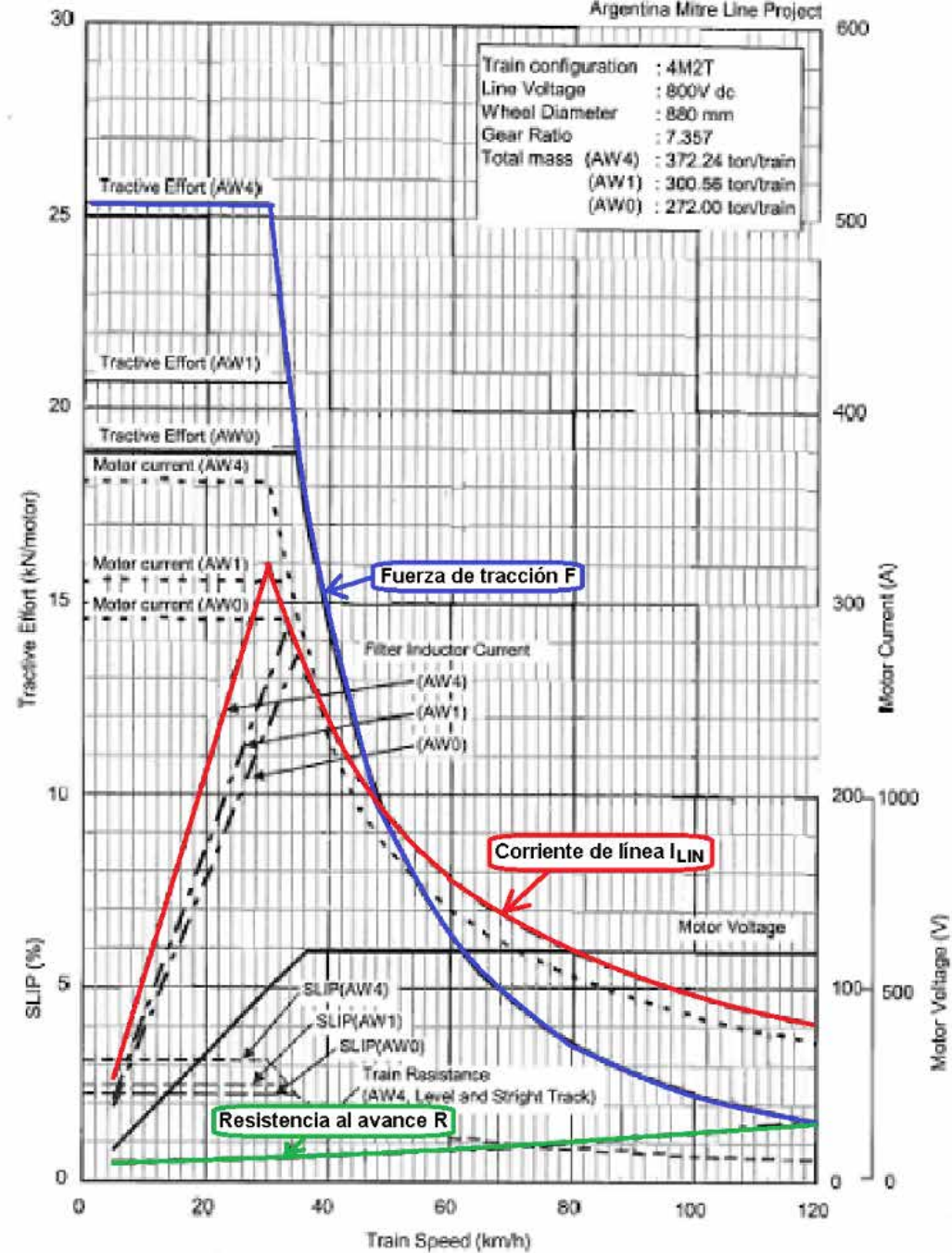


$$s = \frac{V_f^2}{2a_m}$$

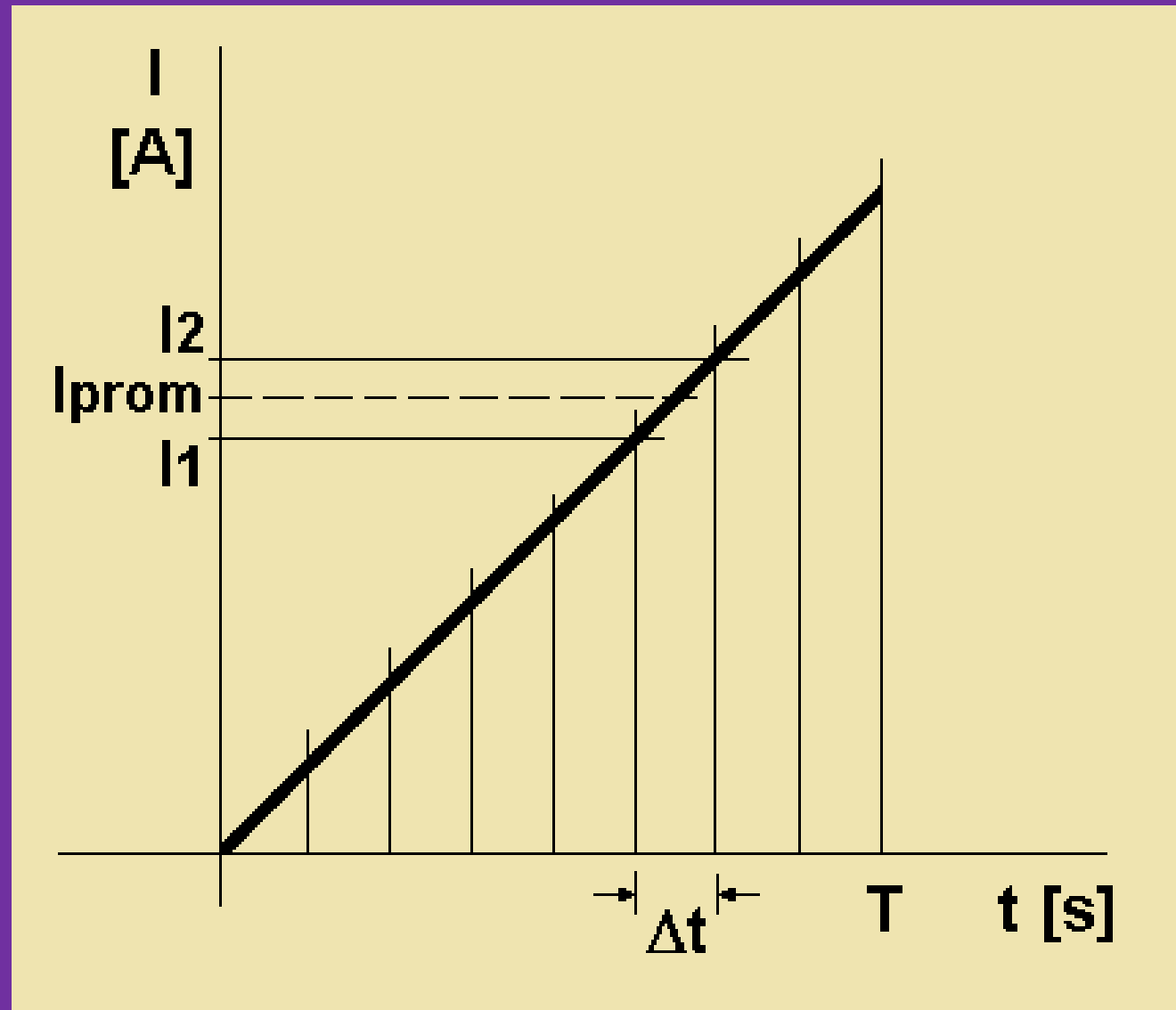
$$\Delta s = \frac{V_2^2 - V_1^2}{2a_m}$$

Powering Performance

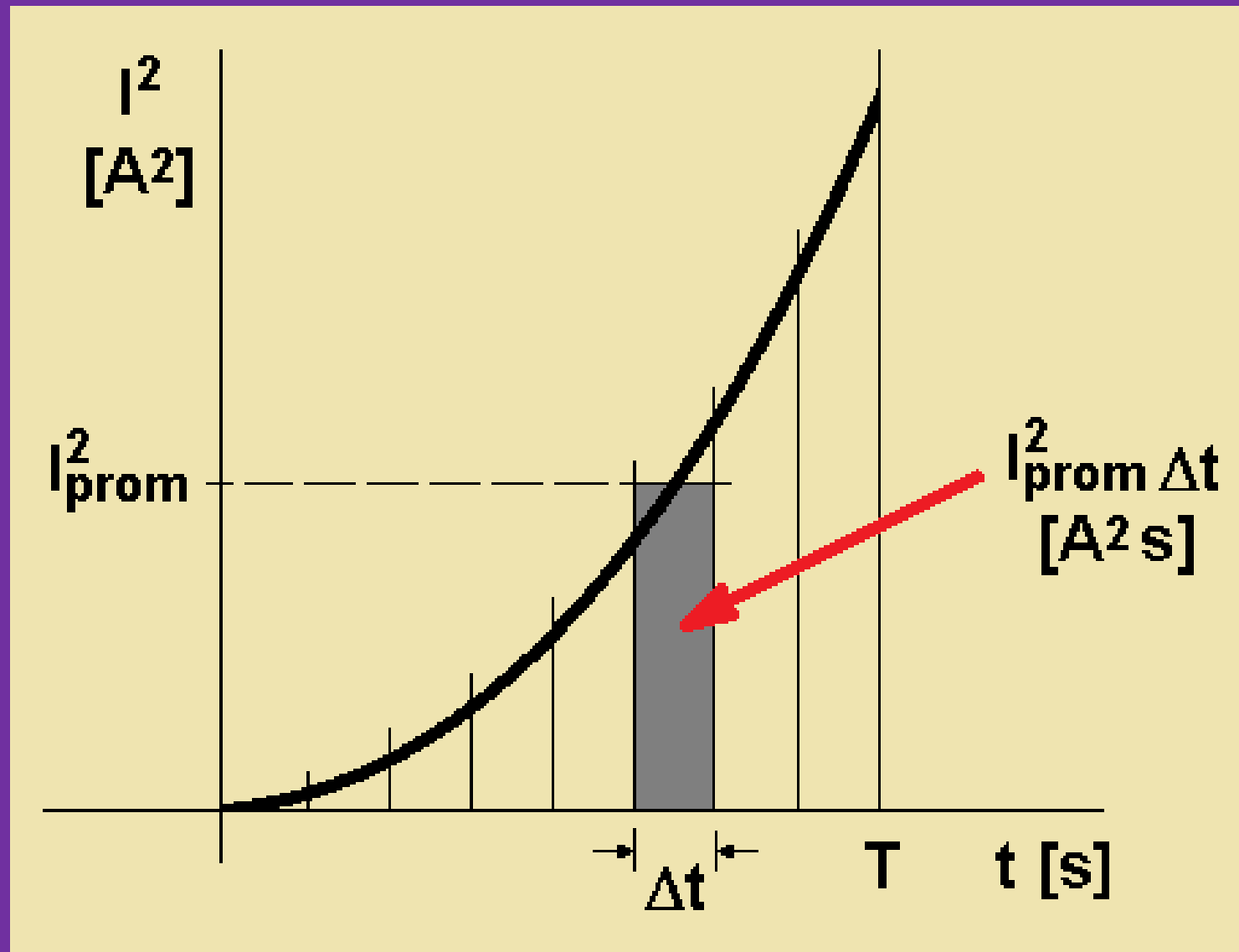
Argentina Mitre Line Project



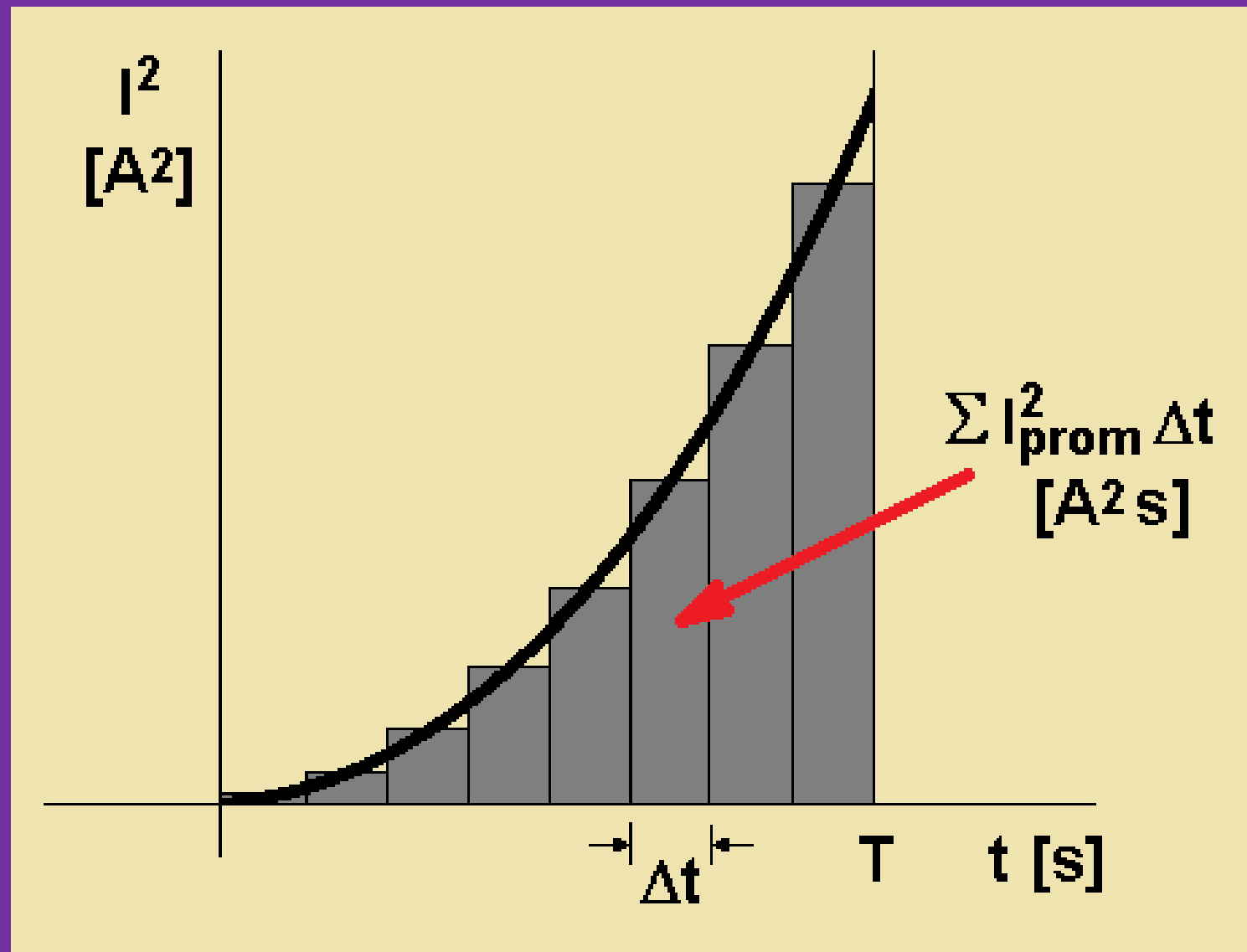
$$W = R I_{RMS}^2 t$$



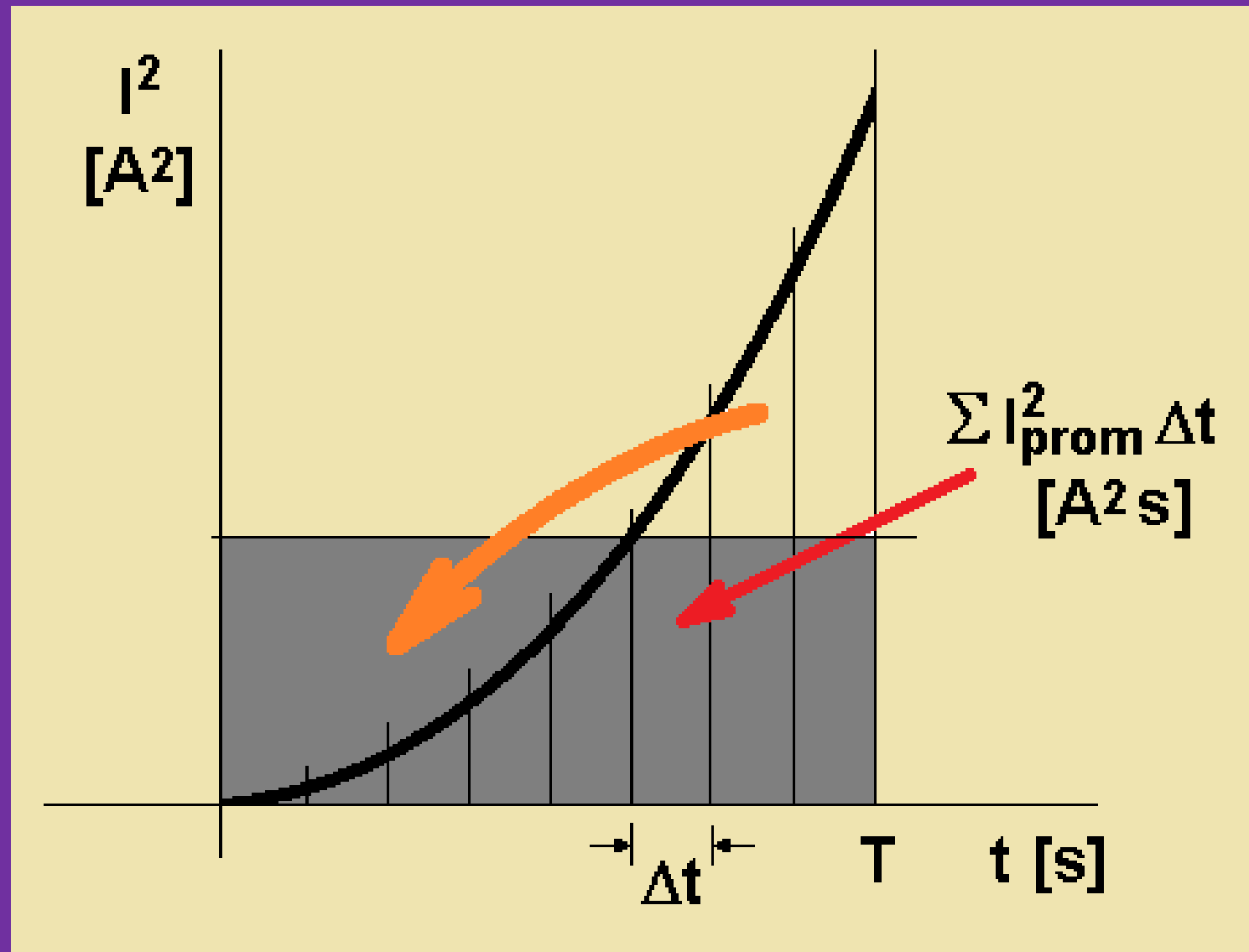
Valor promedio de la corriente de línea



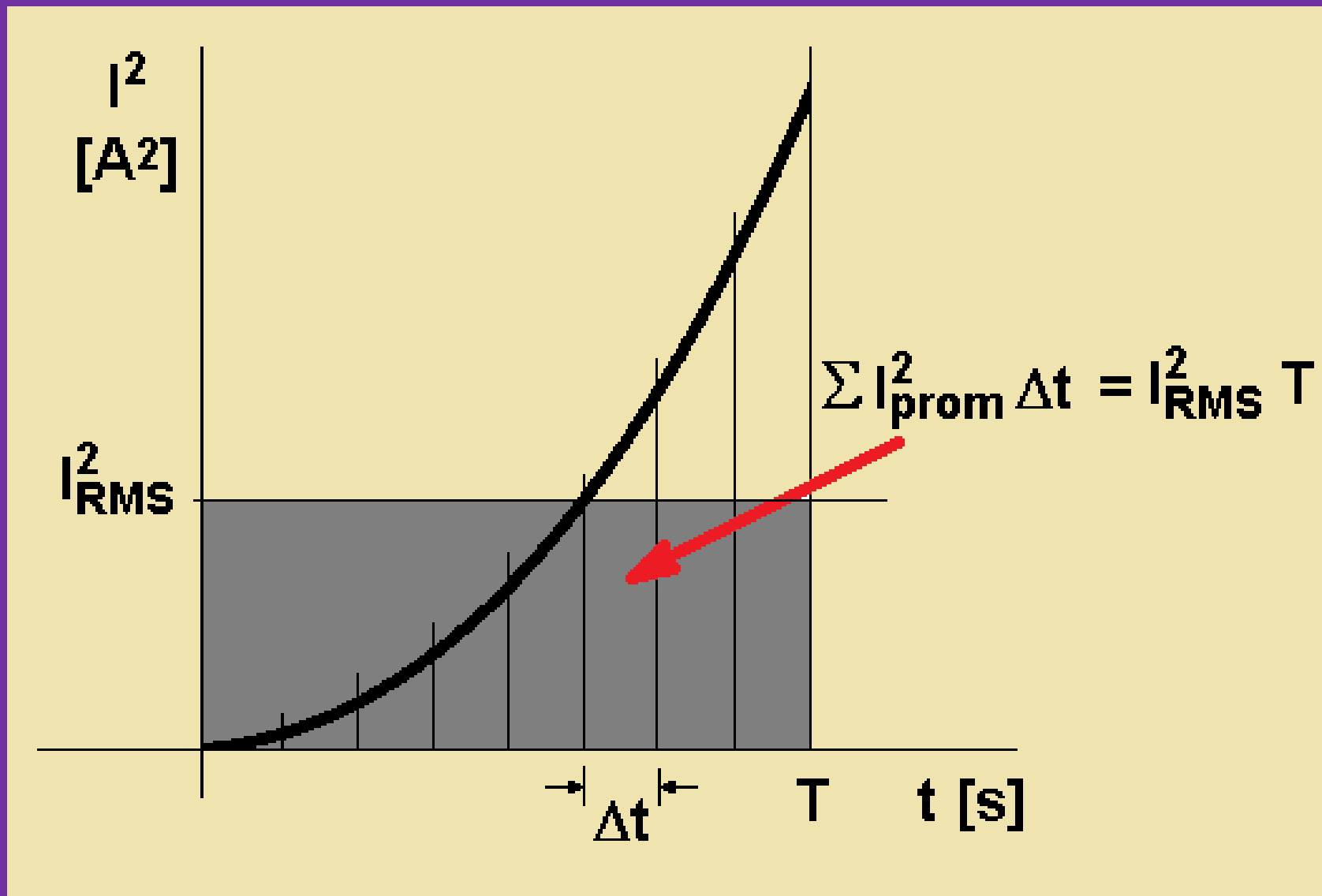
Producto de amper al cuadrado x segundo



Suma de los amper al cuadrado x segundo

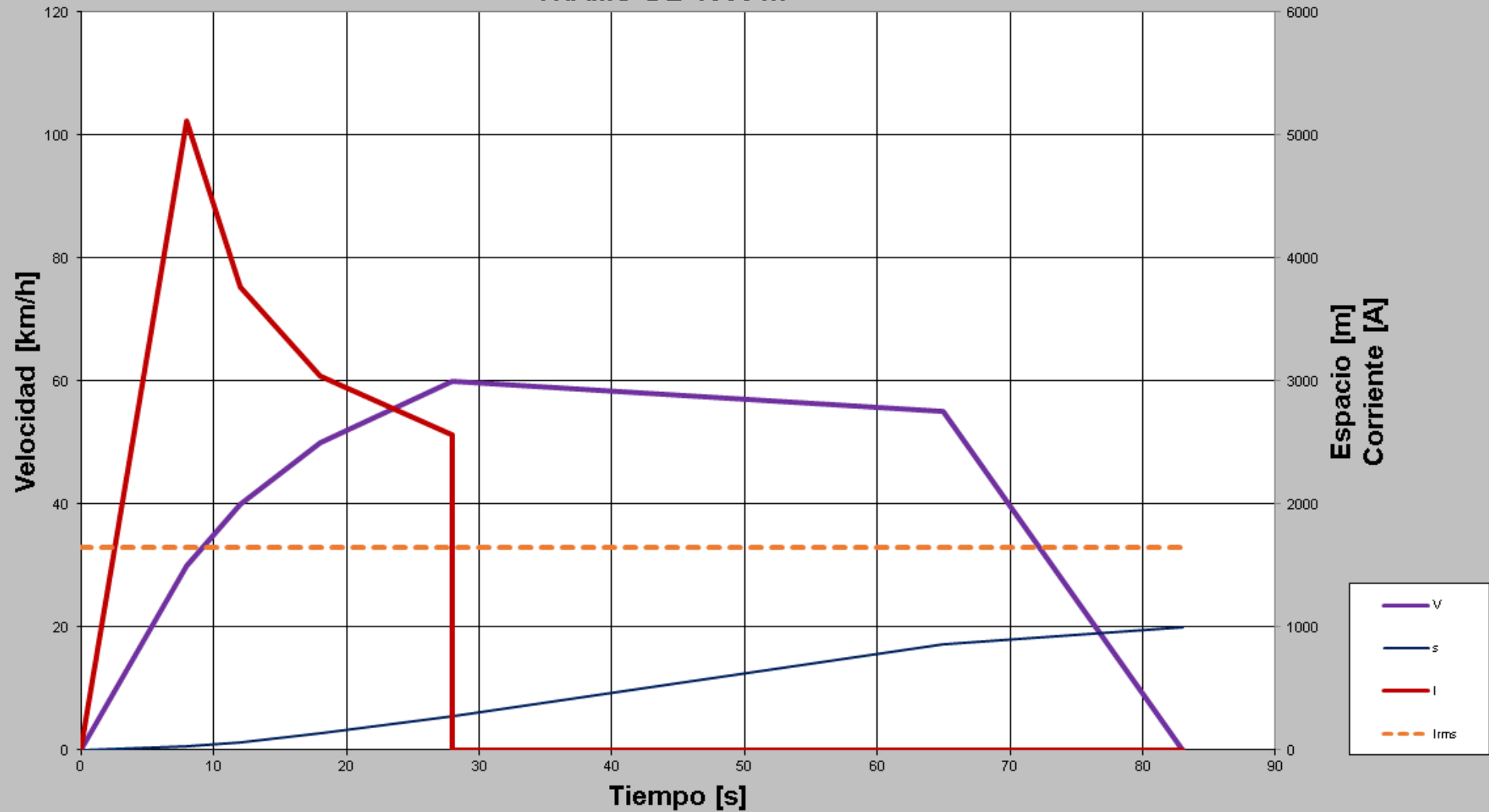


Valor medio de los amper al cuadrado x segundo

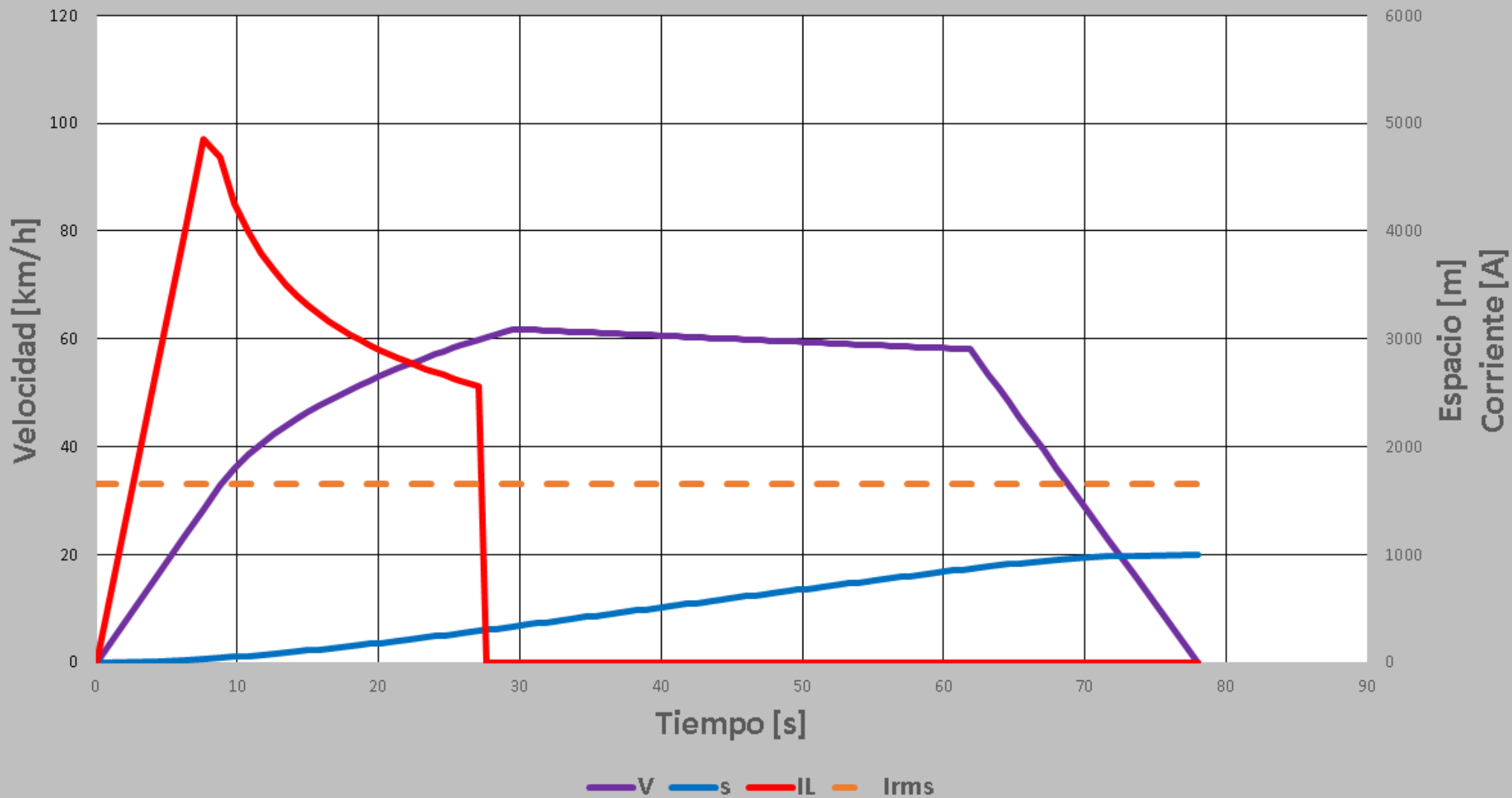


Valor medio cuadrático

CURVAS DE MARCHA COCHES CSR LÍNEA MITRE TRAMO DE 1000 m



CURVAS DE MARCHA
COCHES CSR LINEA MITRE
TRAMO DE 1000 m



$$\frac{1}{2}mV_2^2 - \frac{1}{2}mV_1^2 = F_a\Delta s$$

