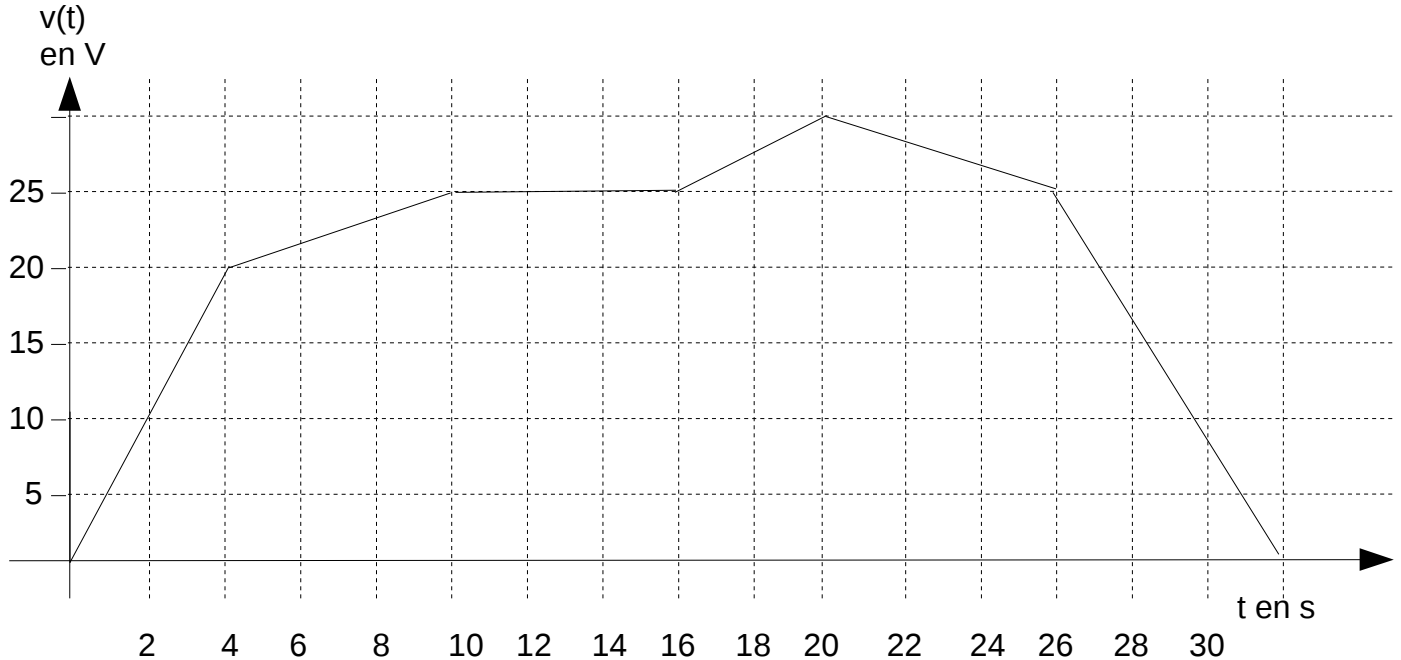


Treball autònom 9

- a) Indica la derivada $\frac{dv}{dt}$ en $t_1=2s$, $t_2=6s$, $t_3=12s$, $t_4=18s$, $t_5=22s$,
 $t_6=30s$.



$$\frac{dv(t_1)}{dt} = \frac{20V}{4s} = 5 \frac{V}{s}$$

$$\frac{dv(t_2)}{dt} = \frac{5V}{6s} = 0,83 \frac{V}{s}$$

$$\frac{dv(t_3)}{dt} = \frac{0V}{6s} = 0 \frac{V}{s}$$

$$\frac{dv(t_4)}{dt} = \frac{5V}{4s} = 1,25 \frac{V}{s}$$

$$\frac{dv(t_5)}{dt} = \frac{-5V}{6s} = -0,83 \frac{V}{s}$$

$$\frac{dv(t_6)}{dt} = \frac{-25V}{6s} = -4,167 \frac{V}{s}$$

- b) Calcula el corrent i per t_1 a t_6 , amb $C=1mF$.

$$i(t_1) = C \cdot \frac{dv(t_1)}{dt} = 0,001F \cdot 5 \frac{V}{s} = 0,005A = 5mA$$

$$i(t_2) = C \cdot \frac{dv(t_2)}{dt} = 0,001F \cdot 0,83 \frac{V}{s} = 0,00083A = 0,83mA$$

$$i(t_3) = C \cdot \frac{dv(t_3)}{dt} = 0,001F \cdot 0 \frac{V}{s} = 0A$$

$$i(t_4) = C \cdot \frac{dv(t_4)}{dt} = 0,001F \cdot 1,25 \frac{V}{s} = 0,00125A = 1,25mA$$

$$i(t_5) = C \cdot \frac{dv(t_5)}{dt} = 0,001F \cdot (-0,83) \frac{V}{s} = -0,00083A = -0,83mA$$

$$i(t_6) = C \cdot \frac{dv(t_6)}{dt} = 0,001F \cdot (-4,167) \frac{V}{s} = -0,004167A = -4,17mA$$