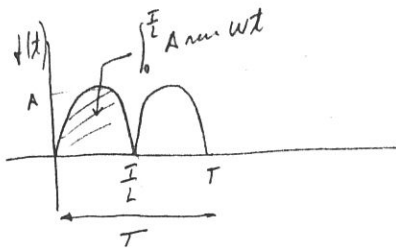
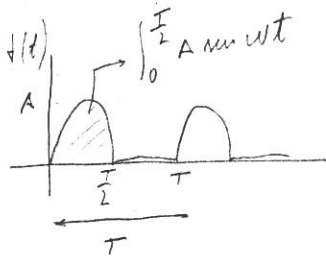


Valor medio  $\rightarrow \frac{1}{T} \int_0^T v(t) dt$



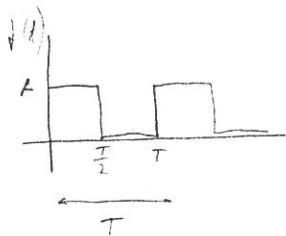
$T = 2\pi \Rightarrow \omega = \frac{2\pi}{T} = 1$

$$\begin{aligned} 2 \cdot \frac{1}{T} \int_0^{\frac{T}{2}} A \sin \omega t dt &= 2 \cdot \frac{A}{T} \int_0^{\frac{T}{2}} \sin \omega t dt = \frac{2A}{T\omega} [-\cos \omega t]_0^{\frac{T}{2}} = \frac{2A}{T\omega} [-\cos \omega \frac{T}{2} + \cos \omega \cdot 0] = \\ &= \frac{2A}{2\pi} [-\cos \pi + 1] = \frac{2A}{\pi} \rightarrow \text{Valor medio} \end{aligned}$$



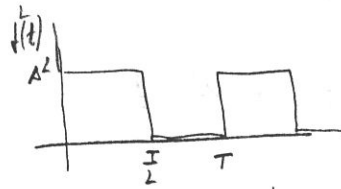
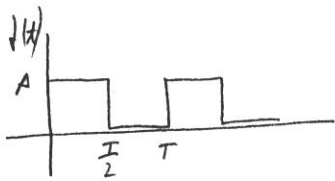
$T = 2\pi \cdot \omega = \frac{2\pi}{T} = 1$

$$\frac{1}{T} \int_0^{\frac{T}{2}} A \sin \omega t dt = \frac{A}{T} [-\cos \omega t]_0^{\frac{T}{2}} = \frac{A}{T} [-\cos \omega \frac{T}{2} + \cos \omega \cdot 0] = \frac{A}{2\pi} [-\cos \pi + 1] = \frac{A}{\pi}$$



$$\frac{1}{T} \int_0^{\frac{T}{2}} A dt = \frac{1}{T} A t \Big|_0^{\frac{T}{2}} = \frac{A}{T} \left[ \frac{T}{2} - 0 \right] = \frac{A}{2}$$

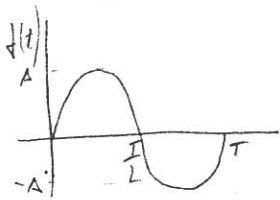
Value Efficiency  $\rightarrow \sqrt{\frac{1}{T} \int_0^T f^2(t) dt}$   
(RMS)



$$\sqrt{\frac{1}{T} \int_0^{\frac{T}{2}} A^2 dt} = \sqrt{\frac{A^2}{T} t \Big|_0^{\frac{T}{2}}} = \sqrt{\frac{A^2}{T} \left[ \frac{T}{2} - 0 \right]} = \sqrt{\frac{A^2}{2}}$$

or

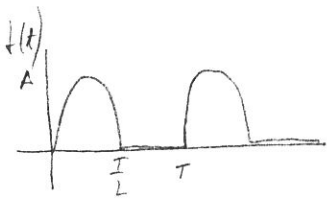
$$\sqrt{\frac{1}{T} \times \underbrace{\left( A^2 \times \frac{T}{2} \right)}_{\text{Area rectangle}}} = \sqrt{\frac{A^2}{2}} = \frac{A}{\sqrt{2}}$$



$$T = 2\pi \quad \omega = \frac{2\pi}{T} = 1$$

$$\begin{aligned} \sqrt{\frac{1}{T} \int_0^T A^2 \sin^2 \omega t dt} &= \sqrt{\frac{A^2}{T} \left[ \frac{t}{2} - \frac{1}{4\omega} \sin 2\omega t - \frac{0}{2} + \frac{1}{4\omega} \sin 2\omega \cdot 0 \right]} = \sqrt{\frac{A^2}{2} - \frac{A^2}{4\omega T} \sin 2\omega T} = \sqrt{\frac{A^2}{2} - \frac{A^2}{8\pi} \sin 2\pi} \\ &= \sqrt{\frac{A^2}{2}} = \frac{A}{\sqrt{2}} \rightarrow \text{Value Efficiency} \end{aligned}$$

C.A.  $P \sin^2 \omega t = P \frac{1}{2} - \frac{1}{2} P \sin 2\omega t = \frac{P}{2} - \frac{1}{4\omega} \sin 2\omega t$



$$T = 2\pi \quad \omega = 1$$

$$\begin{aligned} \sqrt{\frac{1}{T} \int_0^{\frac{T}{2}} A^2 \sin^2 \omega t dt} &= \sqrt{\frac{A^2}{T} \int_0^{\frac{T}{2}} \sin^2 \omega t dt} = \sqrt{\frac{A^2}{T} \left[ \frac{t}{2} - \frac{1}{4\omega} \sin 2\omega t - \frac{0}{2} + \frac{1}{4\omega} \sin 2\omega \cdot 0 \right]} \\ &= \sqrt{\frac{A^2}{T} \left( \frac{T}{4} - \frac{1}{4\omega} \sin 2\omega \frac{T}{2} \right)} = \sqrt{\frac{A^2}{4}} = \frac{A}{2} \rightarrow \text{Value Efficiency} \end{aligned}$$

C.A.

$$P \sin^2 \omega t = \frac{P}{2} - \frac{1}{4\omega} \sin 2\omega t$$