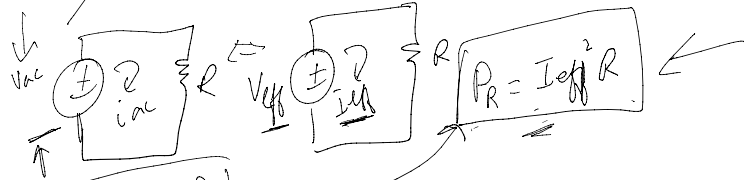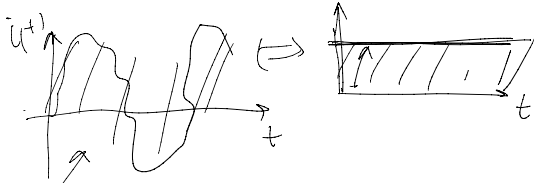Effective value of any~~~current~~~waveform is a constant
(DC-like value), which if passo thorough a
Resistor 'R', delivers the same Average power
as by the current waveform:

$$\Rightarrow \text{voltage}$$

$$\frac{1}{2} I_m^2 R = I_{eff}^2 R$$

$$\boxed{I_{eff} = \frac{I_m}{\sqrt{2}}} = 0.707 \times I_m$$

$$\frac{1}{T}\int i_m^2(t) R \, dt = P_R$$
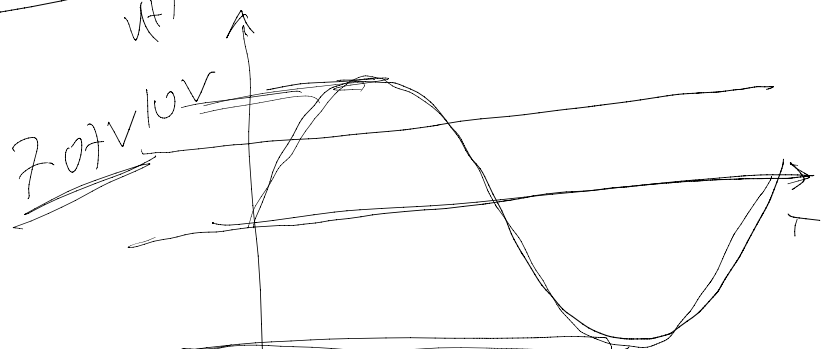
$$\boxed{I_{eff} = \sqrt{\frac{1}{T}\int i_m^2(t) \, dt}} \qquad RMS$$

Root Mean Square

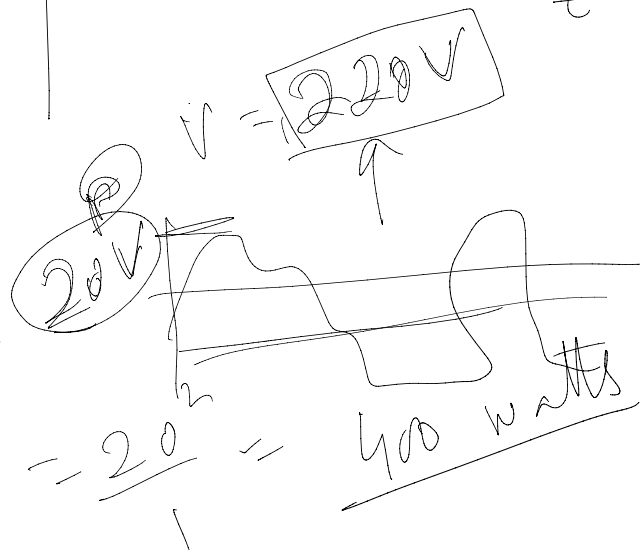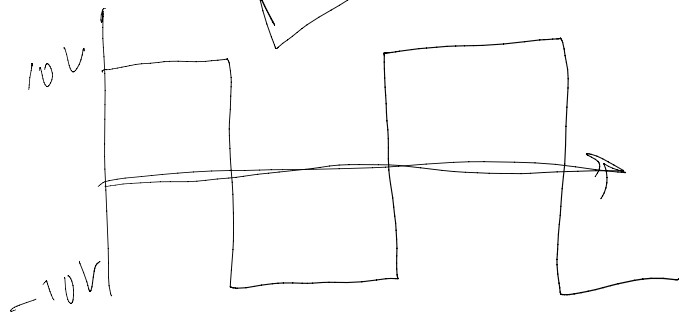$$RMS = \frac{V_m \times 0.707}{V_t}$$

$$P = I_{rms}^2 R$$

$$= V_{rms}^2 \cdot ms$$

$$= \frac{V_{rms}^2}{R}$$

$$= I_{rms} \times V_{rms}$$

AC value

$10V$

$-10V$

$10K$

t

$20V$

$V = 220V$

$20\,\Omega$

$400\ watts$

$1\,\Omega$