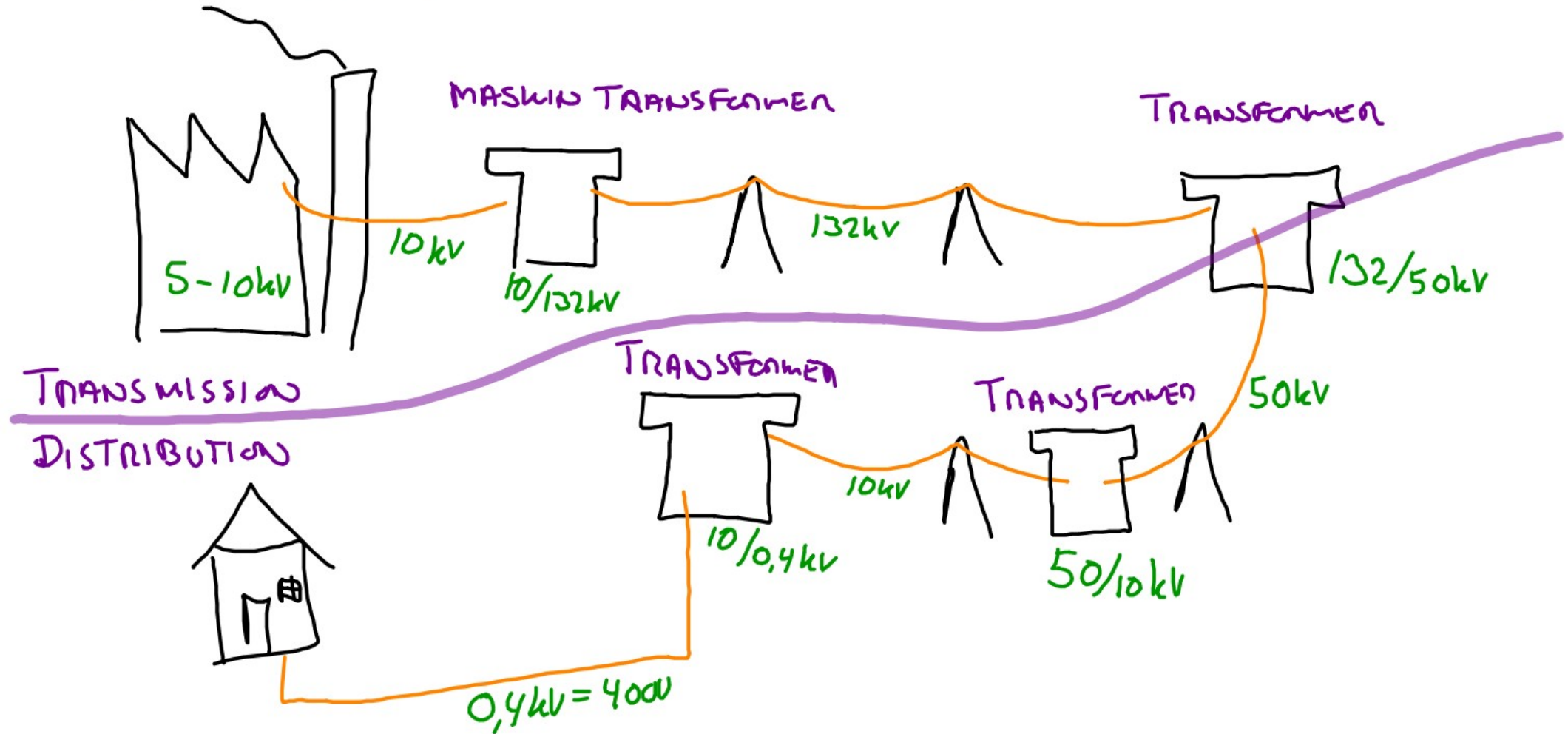


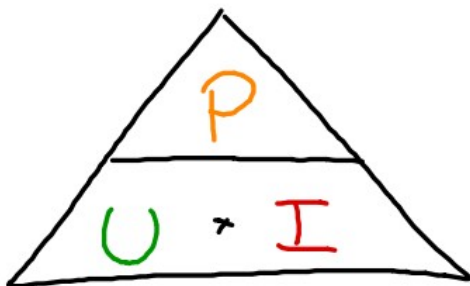
TRANSFORMATION

TRANSFORMER

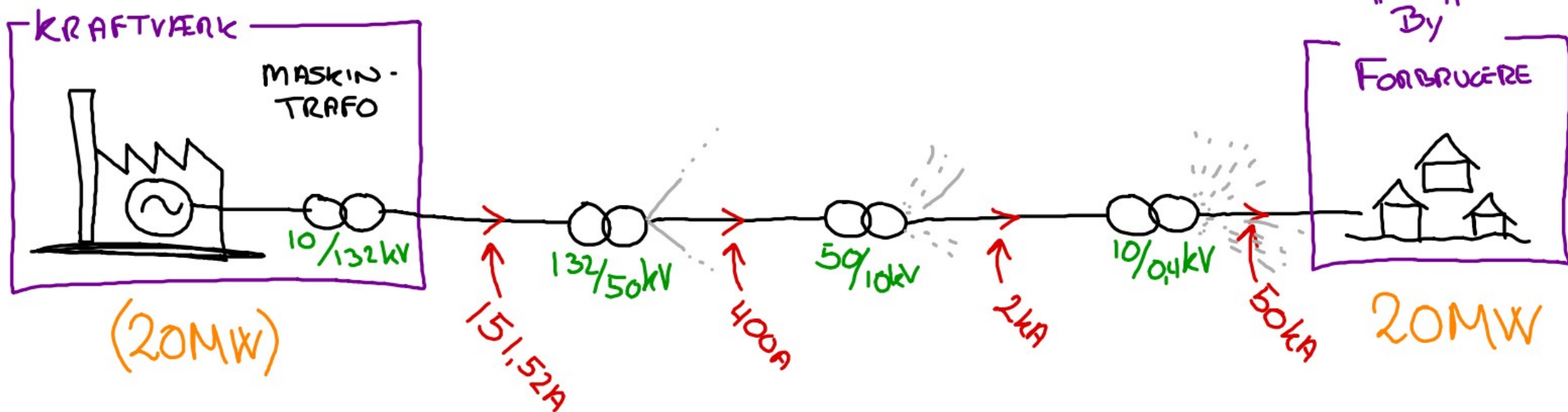
$$I_{\text{DAGLIC TALE}} = \underline{\underline{T_{\text{NAP0}}}}$$



TRANSFORMER (TRAFØ)



Trafo Symbol



TRANSFORMER

INDUKTION & ELEKTRO MAGNETISME

JERN-STANG

SPOLE

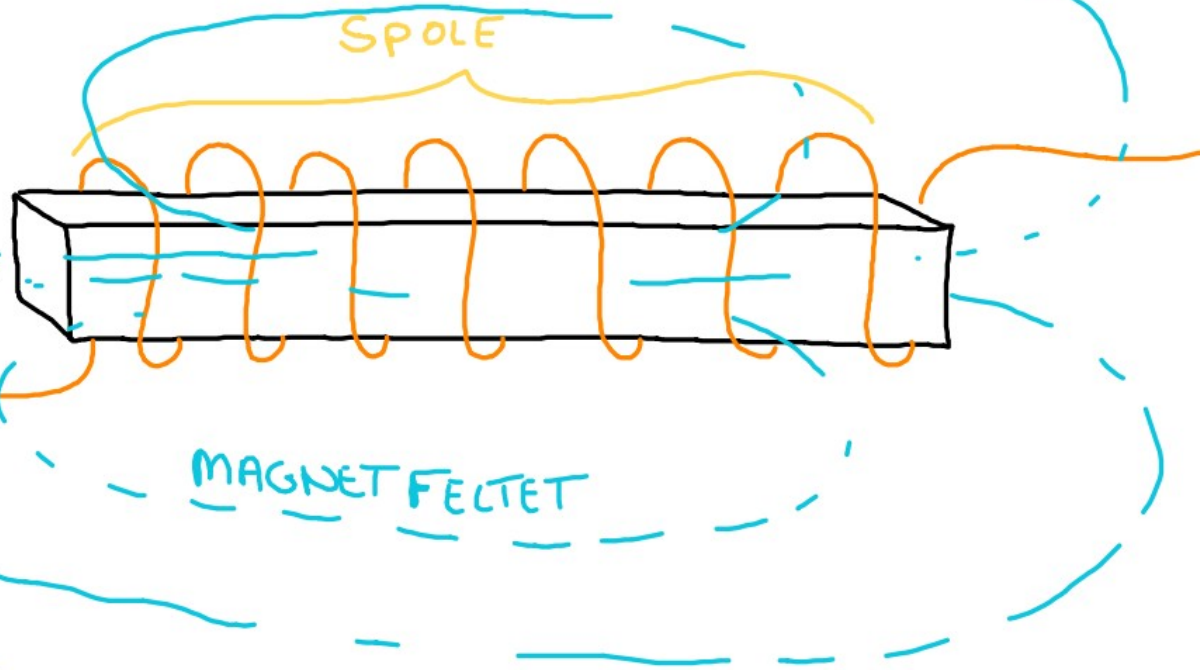
MAGNETFELTET

N — S

VED DC → ELEKTRO MAGNET

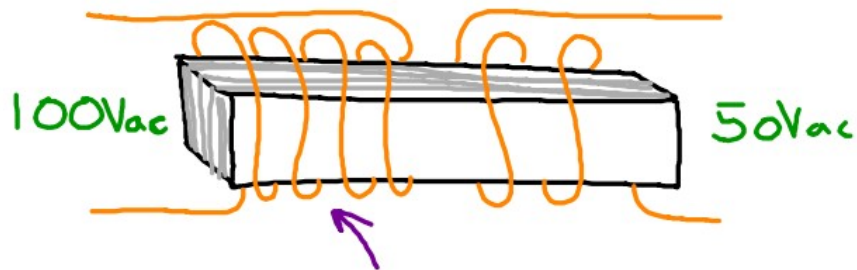
N ↔ S

VED AC → TRANSFORMER EFFEKT



TRANSFORMER

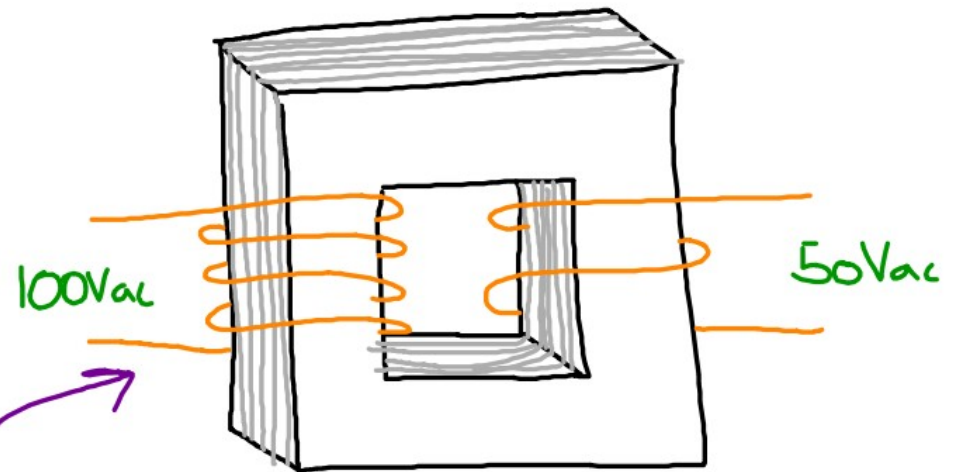
JERN-STANG AF
LAMELLER



(DOBBET SÅ MANGE VINDINGER)

DESUÆRDE INEFFEKTIV !

JERN-KERNE
AF LAMELLER

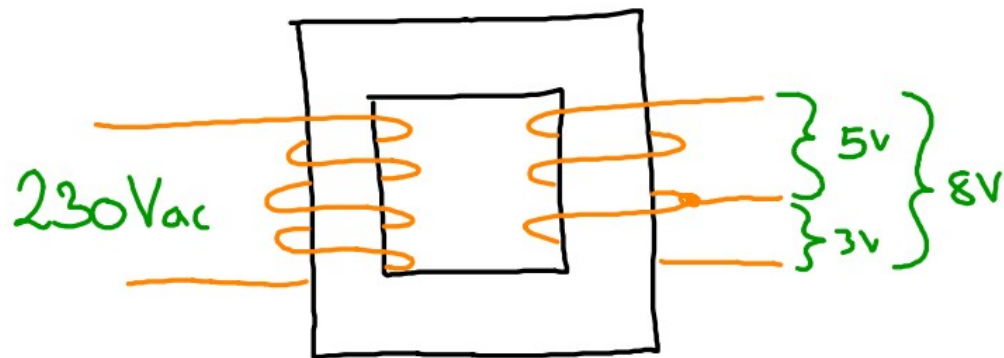


EFFEKTIV JERN-KERNE TRAFØ

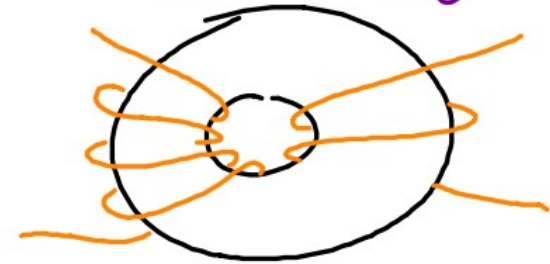
TRANSFORMERE

FORSKELLIGE SPÆNDINGER & TYPER

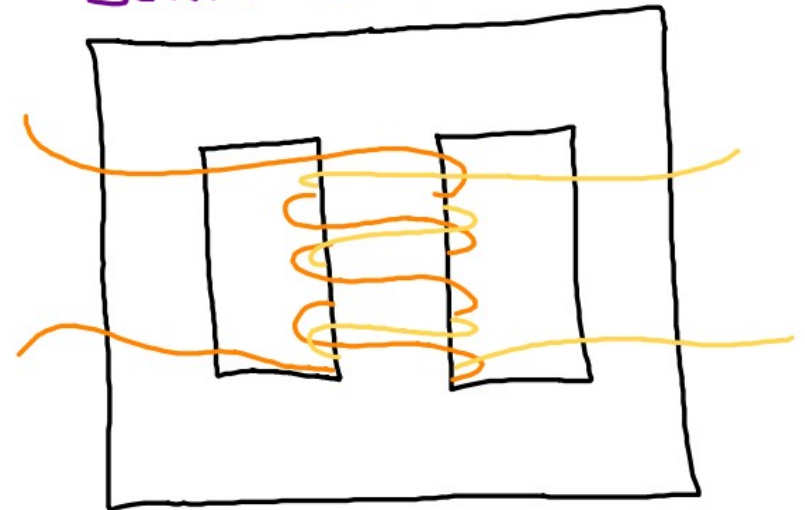
RINGE TRAFØ



RING-TRAFØ



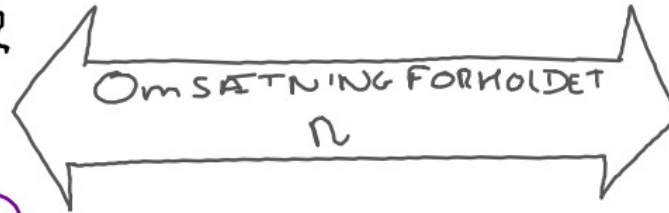
JERN-KERNE TRAFØ



TRANSFORMER

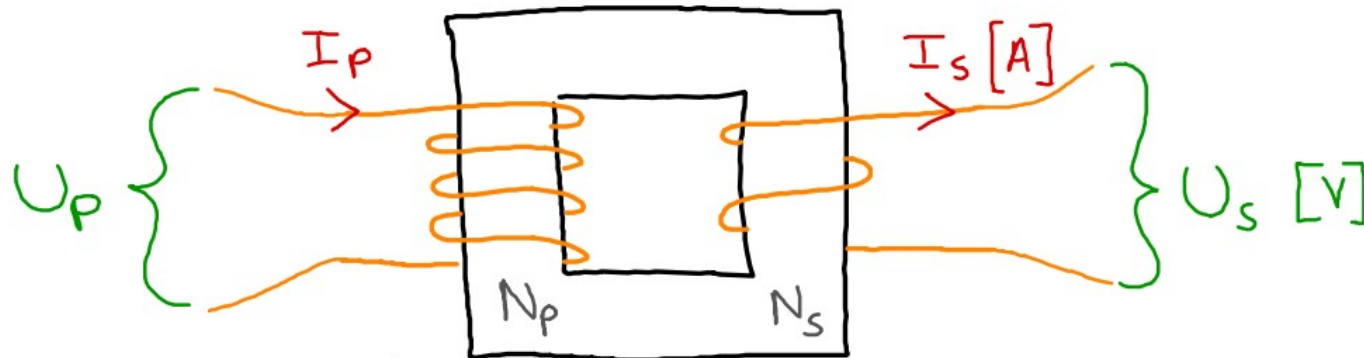
FORHOLD BENÆVNELSE

OBS: TABSFRI



PRIMÆR SIDEN (PRI)

SEKUNDER SIDEN (SEC)



$N = \text{ANTAL VINDINGER [VIN]}$

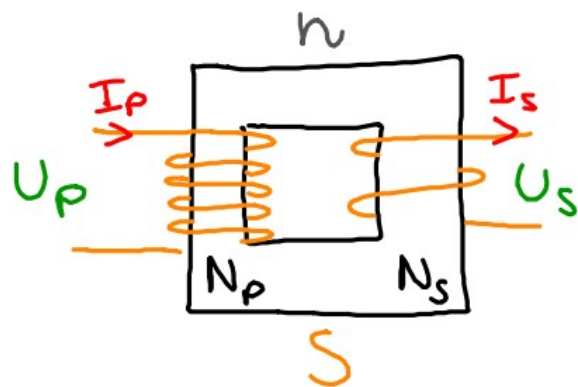
EFFEKTEN: $S \text{ [VA]}$

TRANSFORMER STØRRELSEN

DEN SAMME PÅ BEGGE SIDE

TRANSFORMER

OVERSICHT



n = OMBÆTNINGS FORHØLDET

S = EFFEKTEN (STØRELSEN) [VA]
DER KUN EN GRUNDET TABSFRI

U_p = PRI. SPÆNDING [V]

U_s = SEK. SPÆNDING [V]

I_p = PRI. STRØM (STRØMFORBRUG) [A]

I_s = SEK. STRØM (VDDÆVNEN) [A]

N_p = PRI. VINDINGER [VIN]

N_s = SEK VINDINGER [VIN]

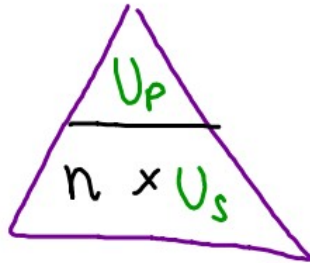
N/V = VINDINGER PR. VOLT [VIN/V]

V/N = VOLT PR. VINDING [V/VIN]

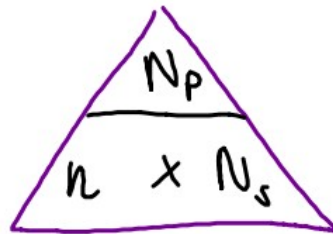
TRANSFORMER

TRANSFORMER LIGNINGEN

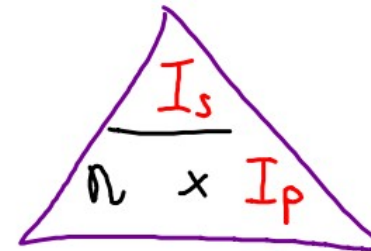
$$\eta = \frac{U_p}{U_s} = \frac{N_p}{N_s} = \frac{I_s}{I_p}$$



SPÆNDING [V]



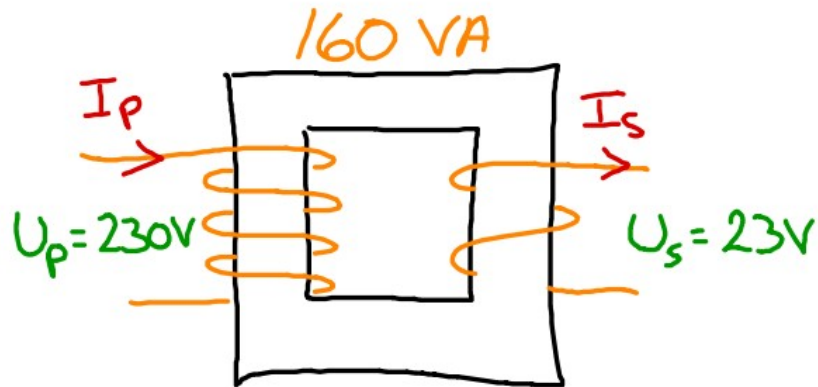
VINDINGER [VIN]



STRØM [A]

TRANSFORMER

TAVLE OPG.



FIND: n , I_p , I_s

$$\textcircled{1} \quad n = \frac{U_p}{U_s} = \frac{230}{23} = \underline{\underline{10}}$$

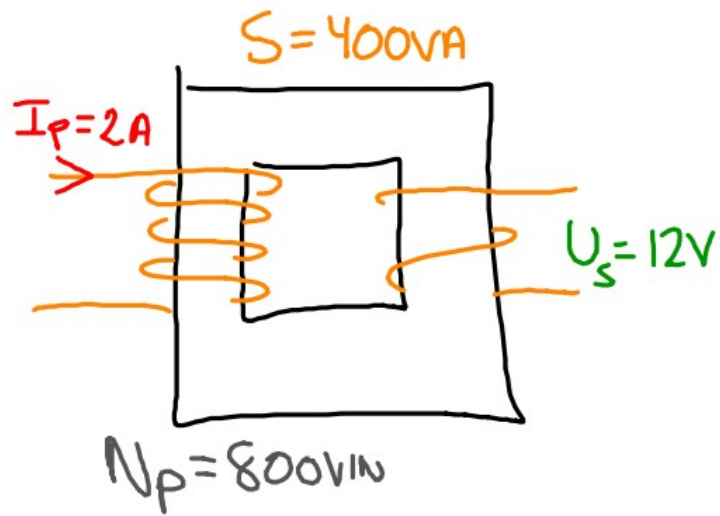
$$\textcircled{2} \quad I_p = \frac{S}{U_p} = \frac{160}{230} = \underline{\underline{695.65 \text{ mA}}}$$

$$\textcircled{3} \quad I_s = \frac{S}{U_s} = \frac{160}{23} = \underline{\underline{6.96 \text{ A}}}$$

$$\textcircled{k} \quad I_s = n \times I_p = 10 \times 0.69565 = \underline{\underline{6.96 \text{ A}}}$$

TRANSFORMER

TAVLE OPG.



FIND: U_p , n , I_s , N_s

$$\textcircled{1} U_p = \frac{S}{I_p} = \frac{400}{2} = \underline{\underline{200\text{V}}}$$

$$\textcircled{2} n = \frac{U_p}{U_s} = \frac{200}{12} = \underline{\underline{16,67}}$$

$$\textcircled{3} I_s = n \times I_p = 16,67 \times 2 = \underline{\underline{33,33\text{A}}}$$

$$\textcircled{4} N_s = \frac{N_p}{n} = \frac{800}{16,67} = \underline{\underline{47,99\text{VIN}}}$$

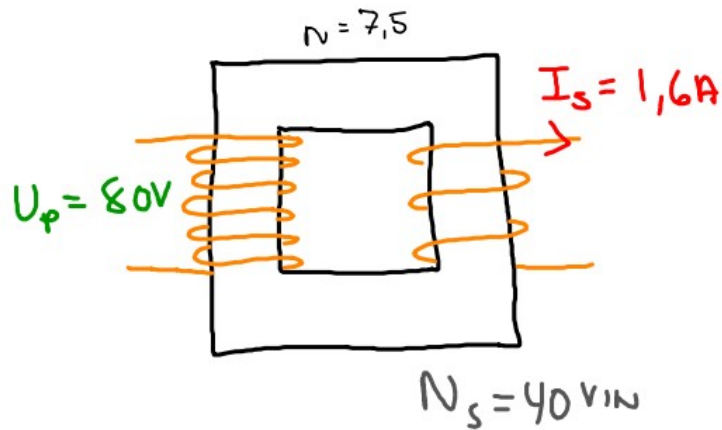
FIND: V/N , N/V

$$\textcircled{5} V/N = \frac{U_p}{N_p} = \frac{200}{800} = \underline{\underline{0,25\text{V/VIN}}}$$

$$\textcircled{6} N/V = \frac{N_p}{U_p} = \frac{800}{200} = 4\text{VIN/V}$$

TRANSFORMER

TABLE Opg.



FIND: I_p , U_s , S , N_p , $\frac{V}{V}$, $\frac{N}{V}$

$$\textcircled{1} \quad I_p = \frac{I_s}{n} = \frac{1,6}{7,5} = \underline{\underline{213,33 \text{ mA}}}$$

$$\textcircled{2} \quad U_s = \frac{U_p}{n} = \frac{80}{7,5} = \underline{\underline{10,67 \text{ V}}}$$

$$\textcircled{3} \quad S = U_s \times I_s = 10,67 \times 1,6 = \underline{\underline{17,07 \text{ VA}}}$$

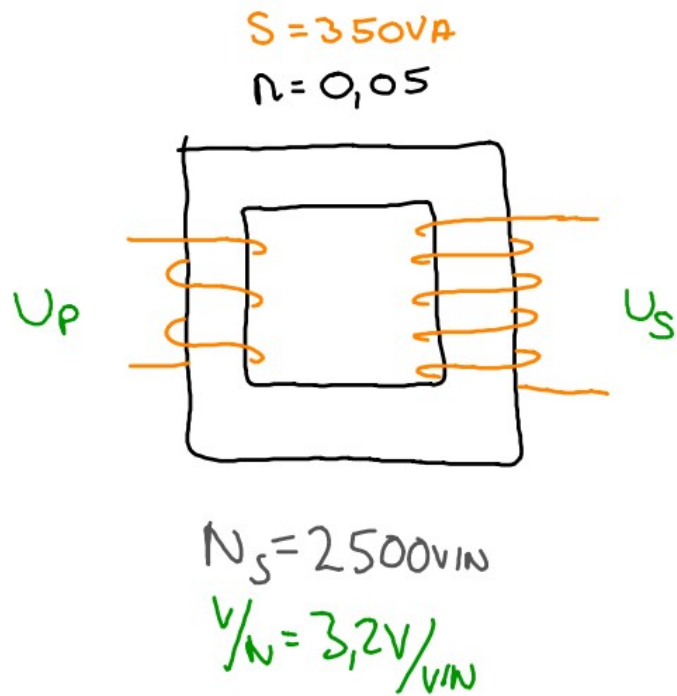
$$\textcircled{4} \quad N_p = n \times N_s = 7,5 \times 40 = \underline{\underline{300 \text{ VIN}}}$$

$$\textcircled{5} \quad \frac{V}{V} = \frac{U_p}{N_p} = \frac{80}{300} = \underline{\underline{266,67 \text{ mV/VIN}}}$$

$$\textcircled{6} \quad \frac{N}{V} = \frac{N_p}{U_p} = \frac{300}{80} = \underline{\underline{3,75 \text{ VIN/V}}}$$

TRANSFORMER

TABLE OPG.



FIND $U_p, U_s, I_p, I_s, \frac{N}{V}, N_p$

$$\textcircled{1} \quad N_p = n \times N_s = \underline{\underline{125 \text{ vln}}}$$

$$\textcircled{2} \quad U_p = \frac{V}{N} \times N_p = \underline{\underline{400 \text{ V}}}$$

$$\textcircled{3} \quad U_s = \frac{V}{N} \times N_s = \underline{\underline{8 \text{ kV}}}$$

$$\textcircled{4} \quad I_p = \frac{S}{U_p} = \underline{\underline{875 \text{ mA}}}$$

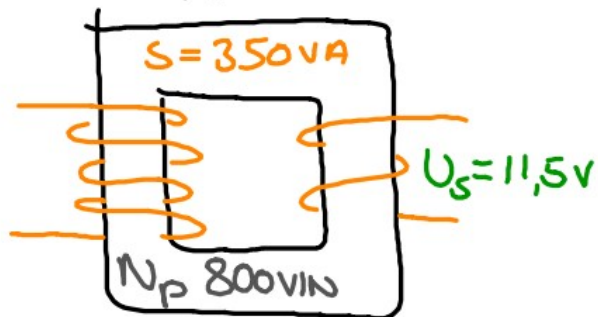
$$\textcircled{5} \quad I_s = \frac{S}{U_s} = \underline{\underline{43,73 \text{ mA}}}$$

$$\textcircled{6} \quad \frac{N}{V} = \frac{N_p}{U_p} = \underline{\underline{0,3125 \text{ Vln/V}}}$$

TRANSFORMER

CHEAT SHEET

$n=20$



① START MED DE GRATIS OPLYSNINGER

② FIND S ELLER n

③ BEREGN TREKANTER $\triangle$

$$U_p = U_s \times n = 11,5 \times 20 = \underline{230V}$$

$$I_s = \frac{S}{U_s} = \frac{350}{11,5} = \underline{30,43A}$$

$$\frac{N}{V} = \frac{N_p}{U_p} = \frac{800}{230} = \underline{3,48V/V}$$

$$I_p = \frac{S}{U_p} = \frac{350}{230} = \underline{1,52A}$$

$$N_s = \frac{N_p}{n} = \frac{800}{20} = \underline{40V/V}$$

$$\frac{V}{N} = \frac{U_p}{N_p} = \frac{230}{800} = \underline{2,875V/V}$$

	$\triangle$ $\frac{U_p}{n \propto U_s}$	$\triangle$ $\frac{I_s}{n \times I_p}$	$\triangle$ $\frac{N_p}{n \times N_s}$	$\triangle$ $\frac{S}{U \times I}$	$\triangle$ $\frac{N}{\frac{V}{N} \times U}$	$\triangle$ $\frac{U}{\frac{V}{N} \times N}$
	U	I	N	S	N/V	V/N
P			800V/V	350VA	20	
S	11,5V					