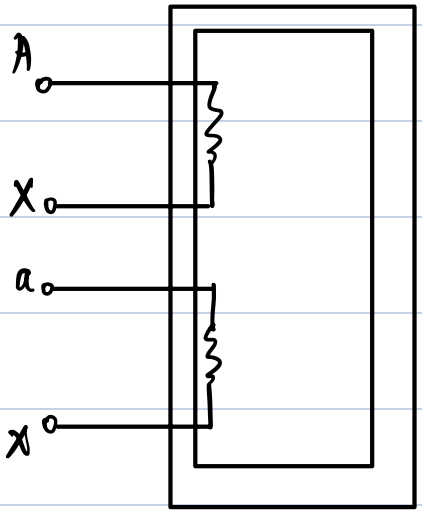
2-4. 单相变压器 $I_{1N}=S_N/U_{1N}=25A$

$I_{2N}=S_N/U_{2N}=625A$

2-5 三相变压器. $I_{1N}=S_N/(\sqrt{3}U_{1N})=288.675A$

$I_{2N}=S_N/(\sqrt{3}U_{2N})=458.2145A$

2-7




$k=2$. $E_0=\frac{U_{1N}}{4.44fN_1}=\frac{220}{4.44fN_1}$ (忽略漏阻抗).

① X、a连.

$E_0'=\frac{330}{4.44fN_1'}=\frac{330}{4.44f\cdot\frac{3}{2}N_1}=\frac{220}{4.44fN_1}=E_0$.

匝数减半 $F_0$. 故 $F_0'=F_0$. $I_0'\cdot 1.5N_1=I_0\cdot N_1$

$\Rightarrow I_0'=\frac{2}{3}I_0$. $P_{Fe}\propto B_m^2$. 而 $B_m=f(E)$.

$P_{Fe}$不变. $P_{Fe}'=P_{Fe}$.

② X与x连.

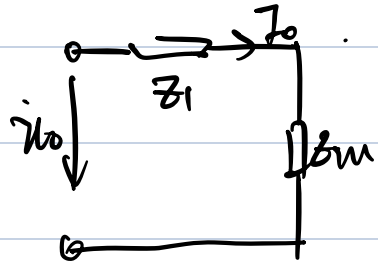
$N_1''=\frac{1}{2}N_1$

$E_0''=\frac{110}{4.44f\cdot\frac{1}{2}N_1}=\frac{220}{4.44fN_1}=E_0$.

$I_0''\cdot\frac{1}{2}N_1=I_0\cdot N_1\Rightarrow I_0''=2I_0$.

匝不变. $P_{Fe}''=P_{Fe}$

2-14. (1) $Z_m$ 远大于 $Z_1$. 负载时 $P = Re[I_0^2 \cdot (Z_1 + Z_m)] \approx Re[I_0^2 Z_m]$.




(1) 负载时 $Z_m$ 与 $Z_2$ 并联, 而 $Z_m \gg Z_2$, 故忽略 $Z_m$ 只有纯阻抗.

(来自 $Z_1$ 和 $R_2 = \frac{Z_2}{K^2}$)