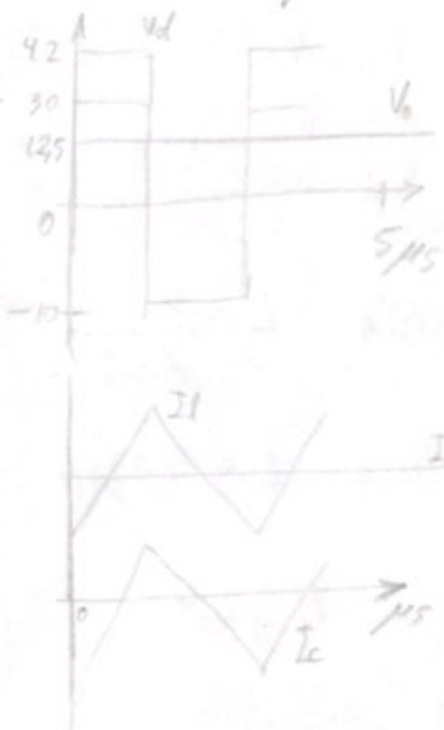# Lista de exercícios

3.1. $V_{in} = 42$ v $D = 0,3$ $P_0 = 24$ w $f = 400$ kHz $L = 25$ µH

$$R = \frac{(42 \cdot 0,3)^2}{24} = 6,6\,\Omega$$

$$I_R = 1,9\,A$$

3.2

$$R = \frac{(42 \cdot 0,3)^2}{12} = 13,23\,\Omega$$

Para 12 w a corrente na carga vai a 0,95A ou seja, a corrente média no indutor cai.

3.3

$$I_R = \frac{(1-D)\,V_0 \cdot D}{2 \cdot L \cdot f} = 0,441\,A$$

$$I_R \cdot 42 \cdot 0,3 = 5,556\,w$$

$$R = \frac{(42 \cdot 0,3)^2}{5,556} = 28,57\,\Omega$$

3.4

V_{in} 24 à 50v

V_{in}	D	V_0		$I_0 = I_R$	P_0	V_0	I_0
24	0,3	7,2			5,1	7,2	0,71
50	0,3	15			5,1	15	0,34

$I_1 = 0,68A$ $L = \dfrac{V_0(1-D)}{f \cdot 2 \cdot I_1} = 19,3\mu H$

V_0	I_0	R
7,2	0,71	10,1
15	0,34	44

$I_e = 1,42A$ $L = 4,43\mu H$

$\therefore L = 19,3\mu H$

3.5

3.6 -

$V_0 = D \cdot V_D = 0,3 \cdot 40 = 12V$

$I_0 = \dfrac{12}{28,8} = 416 mA$
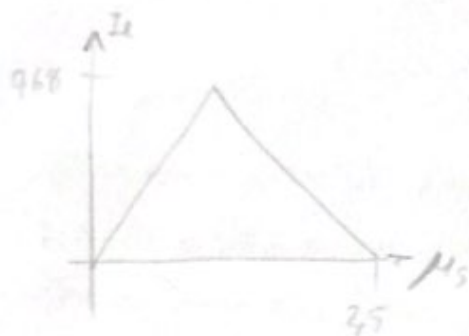
$R = \dfrac{V^2}{P} = \dfrac{12^2}{5} = 28,8\,\Omega$

$L_1 = \dfrac{12(1-D)}{f \cdot 2 \cdot I_0} = 18\mu H$

$\boxed{L_2 = 27,3\mu H}$

3.7 $f = 400\,kHz$ $P_{max} = 72\,w$ $V_{in} = 20$ $V_0 = 12$

$D = \dfrac{V_0}{V_{in}} = 0.6$ $P_0 = \dfrac{72}{3} = 24\,w$

$I_0 = \dfrac{P_0}{12} = 2A$ $L = \dfrac{12(1-0.6)}{400 \cdot 10^3 \cdot 2 \cdot 2} = 3\mu H$