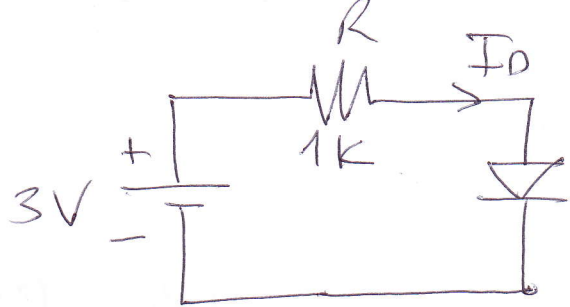


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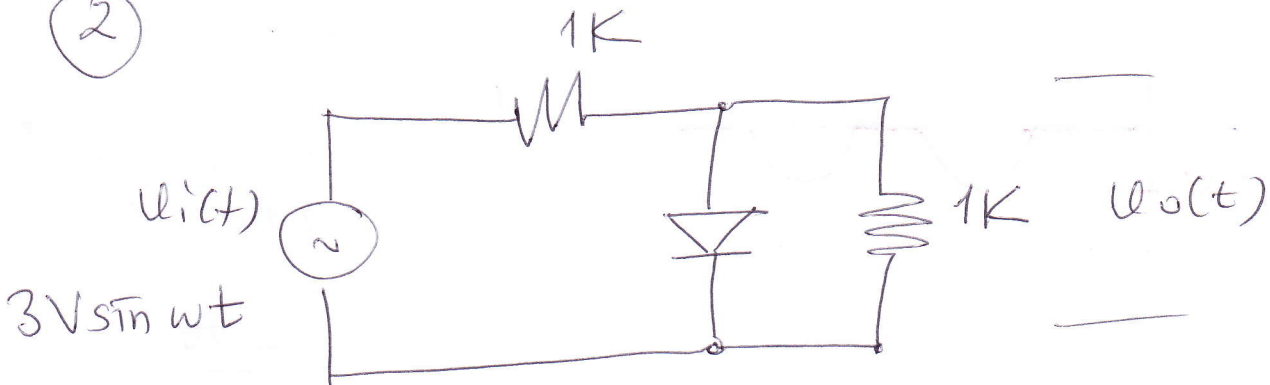
28.03.2011

(1) Calculate I_D

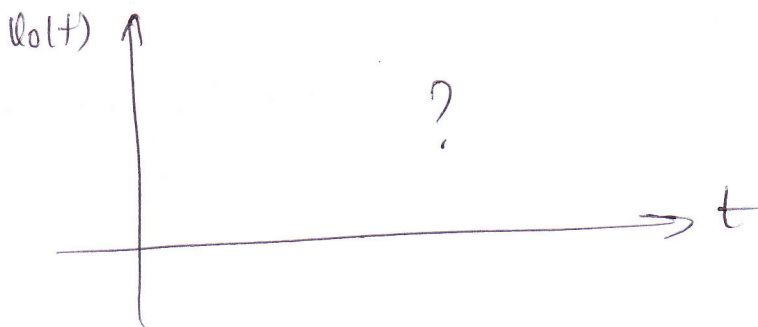


$$V_D = 0.7V$$

(2)



$V_D \equiv 0V$ (ideal diode)



SOLUTION

(1)

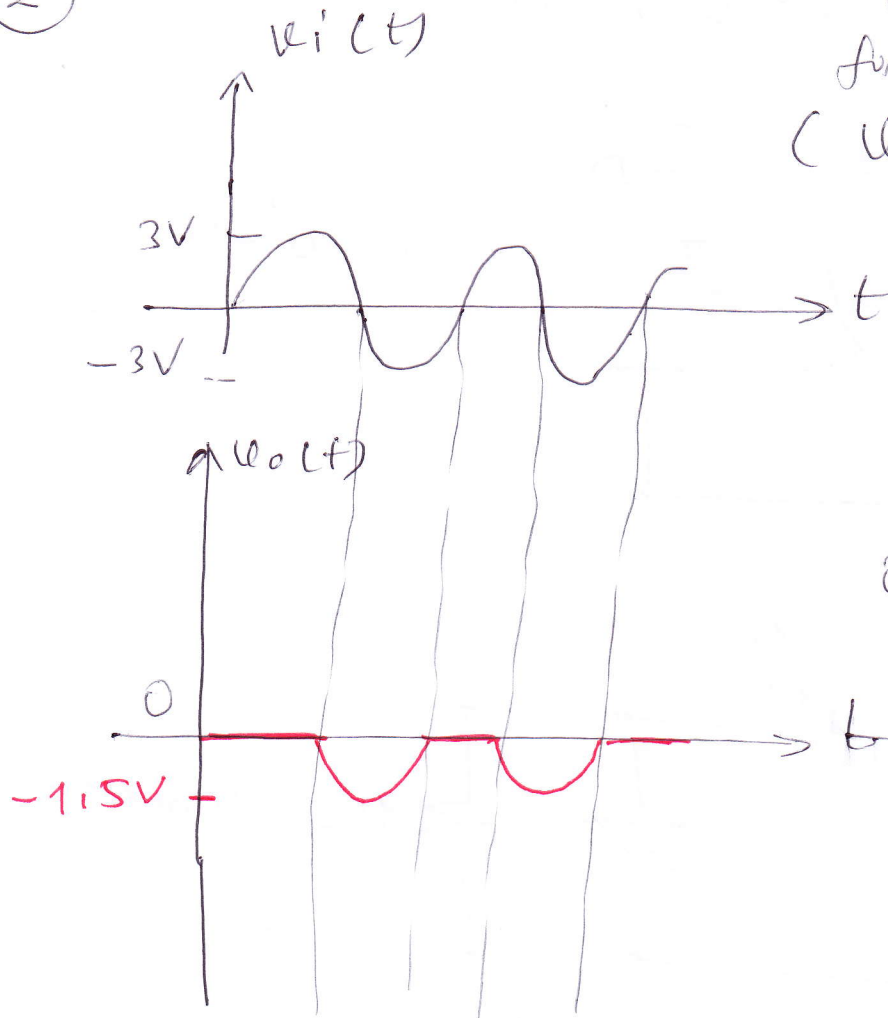
$$3V - I_D \cdot R - 0.7V = 0$$

$$I_D = \frac{3V - 0.7V}{10^3 \Omega} = \frac{2.3V}{10^3 \Omega}$$

~~$I_D = 2.3mA$~~

$$I_D = 2.3mA$$

2



$$V_o(t) = \frac{V_i(t)}{2}$$

When Diode is forward biased ($V_i > 0$),

$$V_o = 0V$$

When Diode is reverse biased ($V_i < 0$)

$$V_o = \frac{-3V \times 1 \times 10^3}{(1+1) \times 10^3}$$

$$V_o = \frac{-3V}{2}$$

$V_o = -1.5V$
at the negative peak.