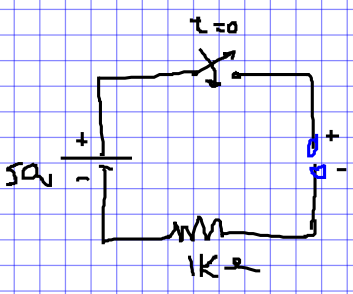
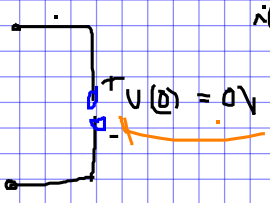
Clase 5 20/10.2022

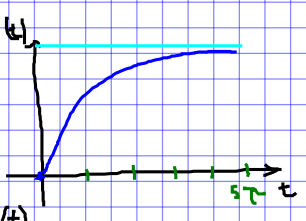
3)

3.1) $t=0^-$



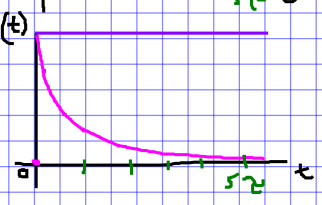


★ $v_c(t)$



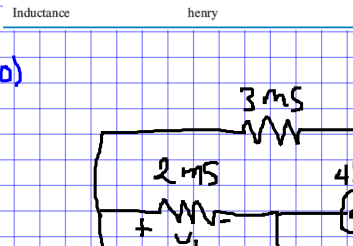
v: no instan.

$i(t)$



i: instan

3.2) $t \to \infty$



$V(\infty) = 50V$

4)

$$i(t) = -\frac{[0V - 50V]}{1000\Omega} e^{-t/\tau}$$

$$i(t) = 0.05\, e^{-t/\tau}$$

$$i(2\tfrac{1}{2}\tau) = 0.05\, e^{-\frac{2\frac{1}{2}\tau}{\tau}}$$

conv.

F.M. → Dec.

$2\frac{1}{2} = 2.5$

$$= 0.05\, e^{-2.5}$$

$$= 0.004\ A$$

$$i(2\tfrac{1}{2}\tau) = 4.10\ mA$$

P 4.3-3 Obtenga v_1 en el circuito mostrado en la figura P 4.3-3.

Respuesta: $v_1 = 1$ V

(1)

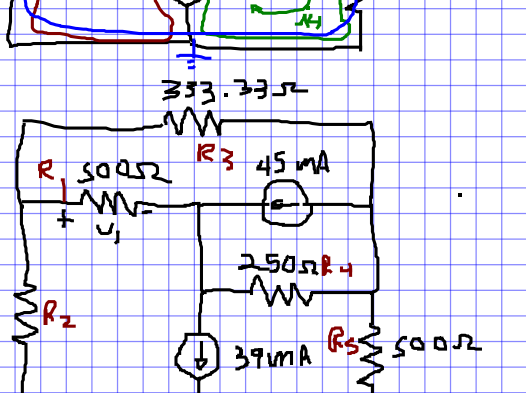


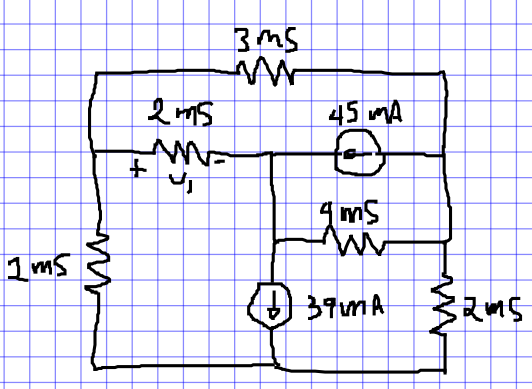
Figura P4.3-3

1.3 Systems of Units

Table 1.3-2 Derived Units in SI

QUANTITY	UNIT NAME	FORMULA	SYMBOL
Acceleration — linear	meter per second per second	m/s^2	
Velocity — linear	meter per second	m/s	
Frequency	hertz	s^{-1}	Hz
Force	newton	$kg \cdot m/s^2$	N
Pressure or stress	pascal	N/m^2	Pa
Density	kilogram per cubic meter	kg/m^3	
Energy or work	joule	$N \cdot m$	J
Power	watt	J/s	W
Electric charge	coulomb	$A \cdot s$	C
Electric potential	volt	W/A	V
Electric resistance	ohm	V/A	Ω
Electric conductance	siemens	A/V	S
Electric capacitance	farad	C/V	F
Magnetic flux	weber	$V \cdot s$	Wb
Inductance	henry	Wb/A	H

0)



1) $v_1 =$

$R_1 =$

$R_2 =$

$R_3 =$

$R_4 =$

$R_5 =$

2)

3) ✓

4)

$$R_1 = \frac{1}{G_1} = \frac{1}{2\ mS} = 500\Omega$$

$$R_2 = \frac{1}{G_2} = \frac{1}{1\ mS} = 1{,}000\ \Omega$$

$$R_3 = \frac{1}{G_3} = \frac{1}{3\ mS} = 333.33\ \Omega$$

$$R_4 = \frac{1}{G_4} = \frac{1}{4\ mS} = 250\ \Omega$$

$$R_5 = \frac{1}{G_5} = \frac{1}{2\ mS} = 500\ \Omega$$