

ZB/4B

3-12-14

Handout

RC Lab

$$A(1 - e^{-\frac{t}{RC}}) + B$$
$$= V_0(1 - e^{-\frac{t}{RC}}) + B$$

OR

$$Ae^{-\frac{t}{RC}} + B = V_0 e^{-\frac{t}{RC}} + B$$

DATA sheet

$C \neq C'$
 $C = \text{CAPACITANCE}$

A	B	$\hat{C} = \frac{1}{RC}$	$\frac{1}{\hat{C}} = RC_{\text{exp}}$	R	C	RC
			MOST IMPORTANT			

Lab Report - Informal ↘

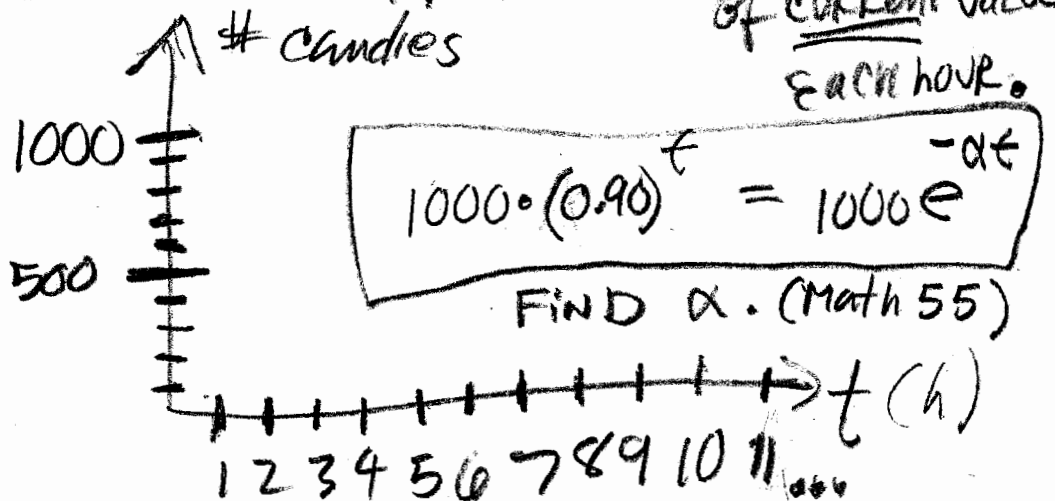
answer

(A) prelim. quest.

(B) analysis qu.

PRE. QU.

(1) candy BAR: subtract 10%
of CURRENT value
each hour.



PRE Q.



(2.)

$$1000 \cdot (0.80)^t = 1000e^{-\alpha t}$$

find α and ALSO

GRAPH # candies vs t

Analysis

9

(1)

$$RC = ?$$

↑ ↑ Label
ON BOARD

2 values of RC.

(2)

$$\frac{1}{\hat{C}} = ? \quad (2 \text{ values})$$

Note: \hat{C} = constant in
curve fit process

$$\frac{1}{\hat{C}} = (RC)_{\text{exp}} \leftarrow \text{FROM CURVE FIT}$$

5

(3 -)

CHECK:

$$\underbrace{(RC) - \Delta}_{R_{MIN}}$$

$$< (RC)_{exp}$$

TWICE

$$< \underbrace{(RC) + \Delta}_{R_{MAX}}$$

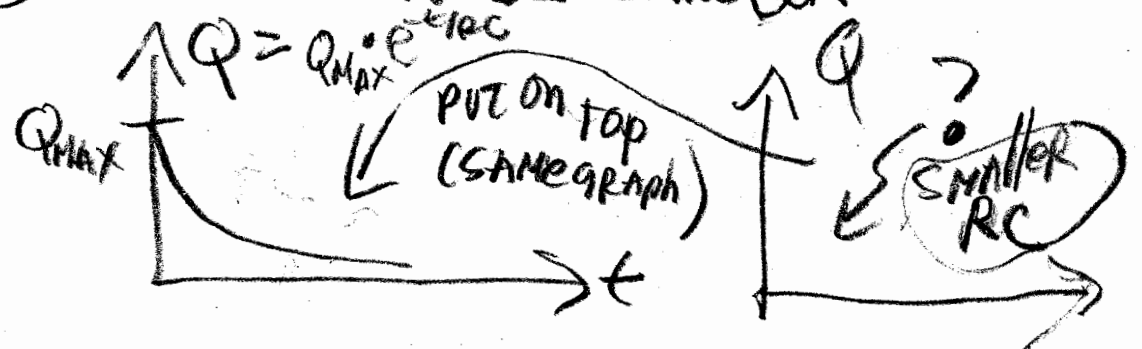
$$RC = R_{Lab} \cdot (1 \pm 0.05) \cdot C \cdot (1 \pm 0.05)$$

$$(RC)_{MAX} = (RC)_{Lab} \cdot (1.1025)$$

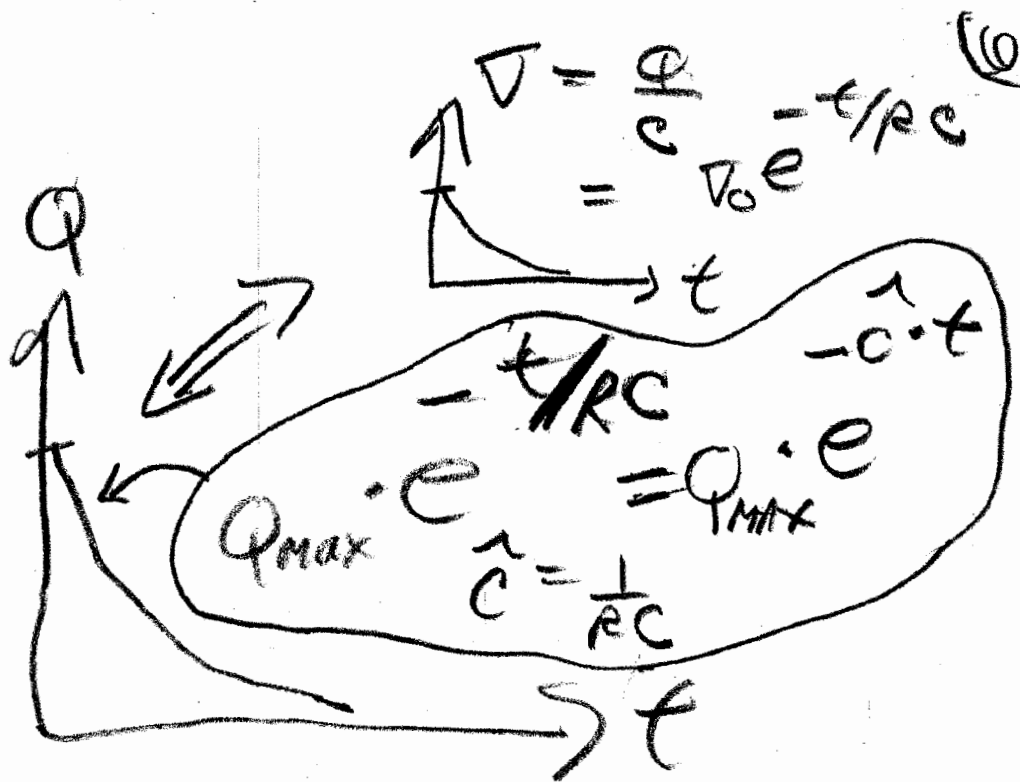
$$R_{min} = (RC)_{Lab} \cdot (0.9025)$$

(4)

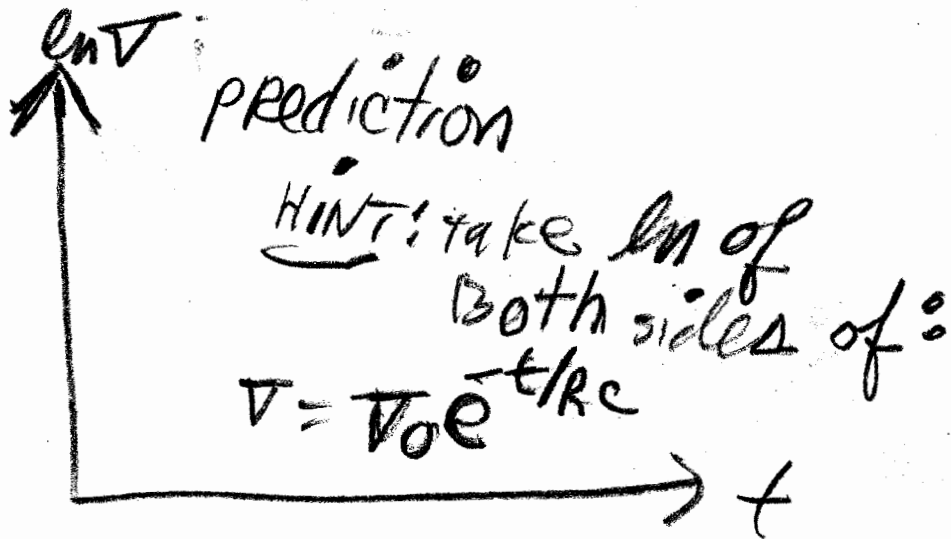
RC BECOMES SMALLER



5.
 predict
 and
 click.



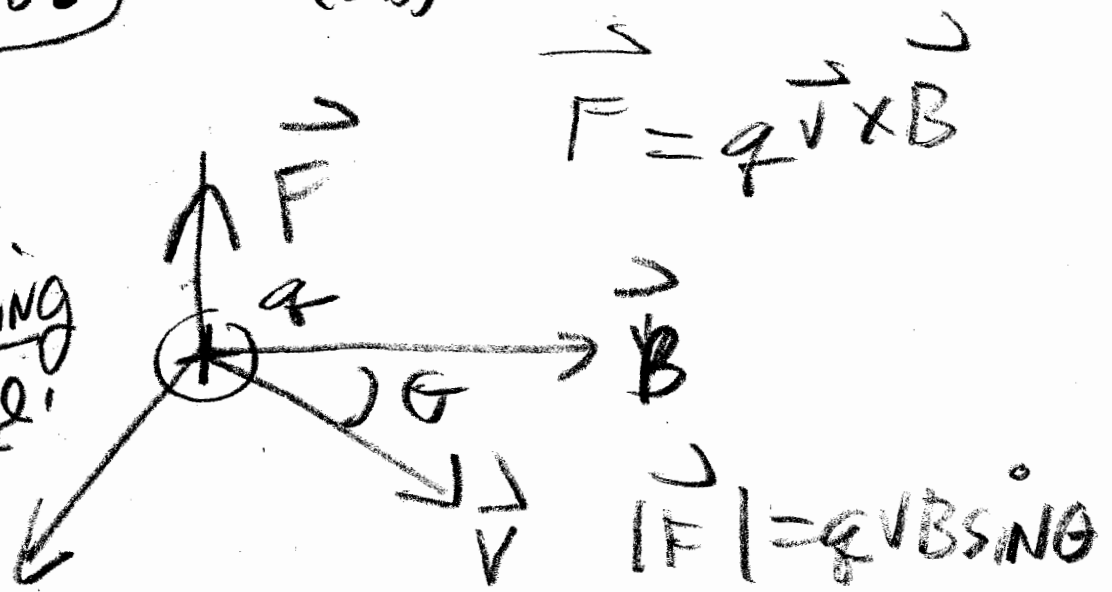
6.



FORCE due TO FIELD \vec{B}

CH 20 (2B) OR CH 27 (4B)

(i) FORCE ON MOVING CHARGE



(ii) FORCE ON WIRE WITH CURRENT I

