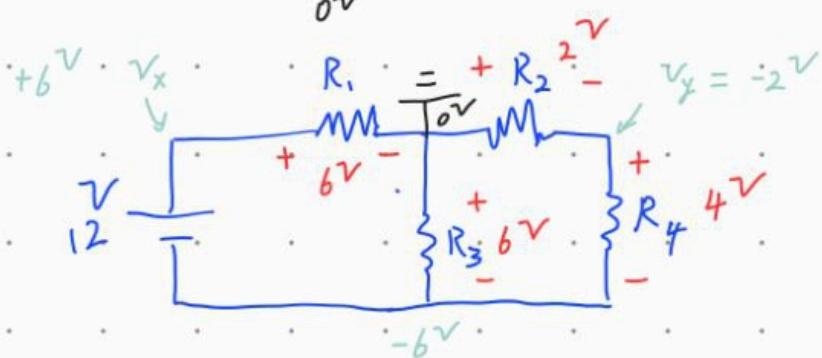
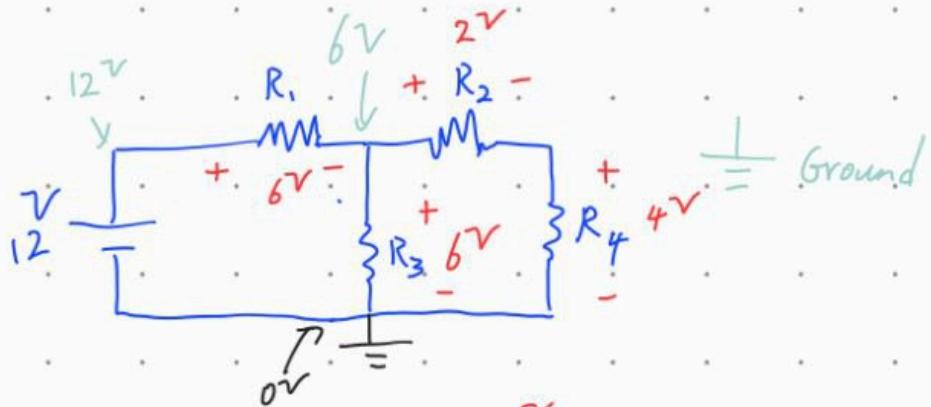


Lecture 1

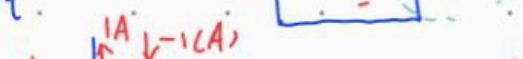


$$0 - (-6V) = +6V$$

Electric Power:

$$P = \frac{dW}{dt} = \frac{dW}{dq} \cdot \frac{dq}{dt} = V(t) \cdot i(t)$$

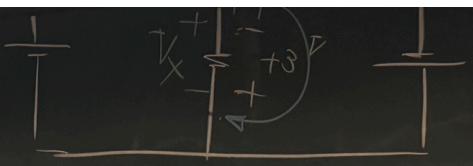
$$\begin{cases} i(t) = \frac{dq}{dt} \\ V(t) = \frac{dW}{dq} \end{cases} \quad I = \frac{10V}{10\Omega} = 1A$$



$$I = \frac{10V}{10\Omega} = 1A$$

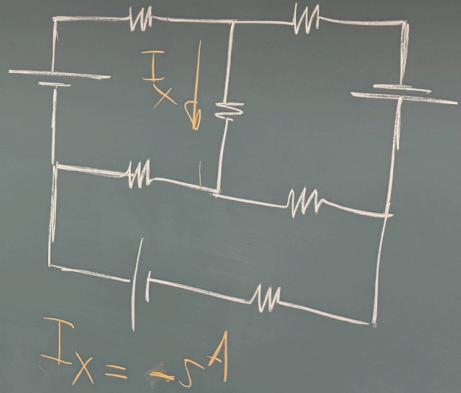
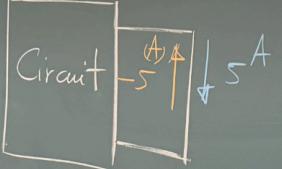
$$P = 10V \times 1A = 10W$$

$$P = 10V \times 1A = 10W$$



$$i(t) = \frac{dq(t)}{dt}$$

(Amp) $\rightarrow (C)$
 $\curvearrowleft (sec)$

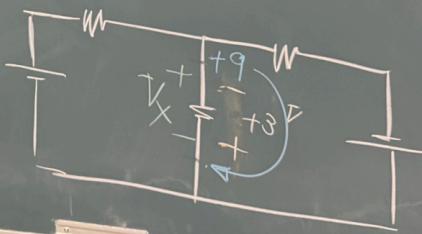
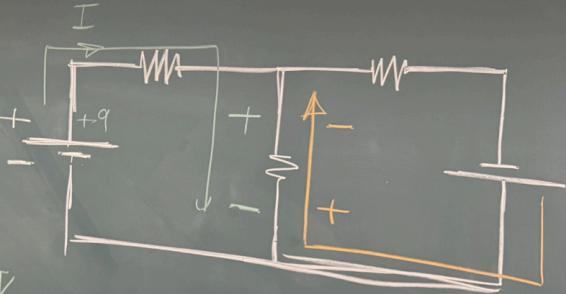




$$V_{ab} = 5 \text{ V}$$

$$V_{ba} = -5 \text{ V}$$

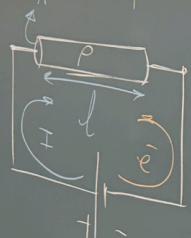
$$V_X = -3 \text{ V}$$



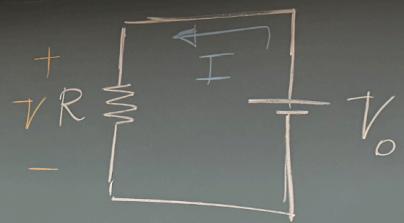
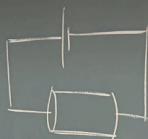
A diagram of a rectangular circuit loop labeled "Circuit". Inside the loop, there are four positive charges (+q) at the top and two negative charges (-q) at the bottom. A point "a" is located above the top-left charge, and a point "b" is located below the top-right charge. A curved arrow indicates a clockwise direction of current flow around the loop. To the right of the diagram, the text "(V₀(t))" is written above the equation.

$$v_{ab} = \frac{dW^{(J)}}{dq(C)} = \frac{\Delta W}{\Delta q}$$

$$R = \rho \frac{l}{A}$$



Resistance



$$V = R I$$

Ohm's Law