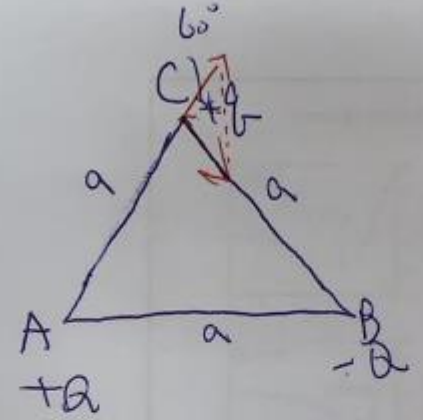
p24



(Q>0, q<0)

$F_{\searrow} + F_{\nearrow}$

$$= \frac{k_e q Q}{a^2}\cos 60^\circ + \frac{k_e q Q}{a^2}\cos 60^\circ$$

$$= \frac{\sqrt{3}\, k_e q Q}{a^2} \ (\rightarrow)$$ 方向.

p27

(1) A處電場為何

假設一个 +q 電荷在 A

電力 $\frac{k\cdot 4Qq}{a^2} + \frac{kqQ}{(2a)^2} = \frac{17\cdot kQq}{4a^2}$

電場: $\frac{17kQ}{4a^2}$

(2) 由上題可以知道電場為0處不會在兩電荷中間

假設在右側(標黑點)

令 C到標黑點距離為 r

$$\frac{k\cdot q\, 4Q}{(3a+r)^2} + \frac{-kqQ}{r^2} = 0$$

$$\Rightarrow \frac{4}{(3a+r)^2} = \frac{1}{r^2}$$

$$r^2 + 6ar + 9a^2 = 4r^2$$

$$3r^2 - 6ar - 9a^2 = 0$$

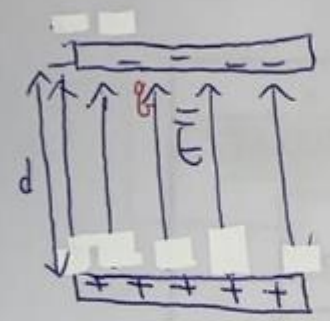
$$r^2 - 2ar - 3a^2 = 0$$

$r \to 3a$

$r \quad a$

$(r-3a)(r+a)=0 \Rightarrow r = 3a \text{ or } -a$

P34



(1) 负电

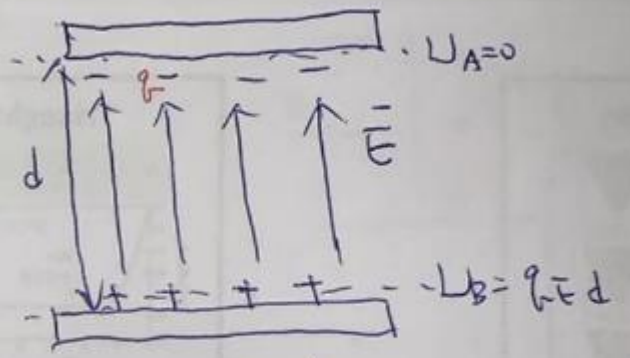
(2) $F = qE = ma$

$$a = \frac{qE}{m}$$

(3) $$qEd = \frac{1}{2}mv^2$$

$$v = \sqrt{\frac{2qEd}{m}}$$

P38



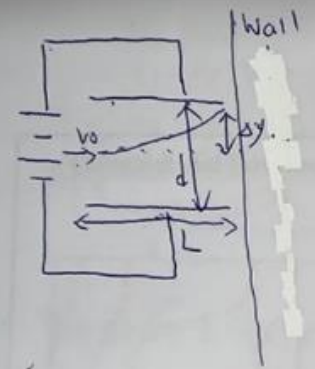
(1) $$W = \vec{F} \cdot \vec{d} = qEd.$$

(2) $$W = -\Delta U = -qEd.$$

(3) $$\Delta K = qEd = \frac{1}{2}mv^2$$

$$v = \sqrt{\frac{2qEd}{m}}$$

P42.



(1)

$V = E \times d$

$E = \frac{V}{d} \propto \frac{1}{d}$

(2)

$y = v_0 t^0 + \frac{1}{2} a t^2$ 給從向

$= a \cdot (\frac{L}{v_0})^2$

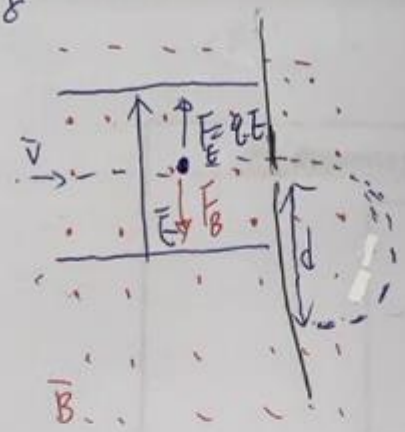
假設電子重為 m，電量為 q

$F = qE = ma$

$a = \frac{qE}{m}$

$\Rightarrow y = \frac{qE}{m}(\frac{L}{v_0})^2 \propto E \propto \frac{1}{d}$

P48



(1)

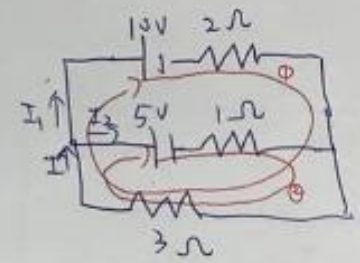
$F = qE = qvB = qvB$

$\Rightarrow V = \frac{E}{B}$

(2) $F = qvB = m\frac{v^2}{(\frac{d}{2})} = \frac{2m}{d}\frac{E}{B}$

$\Rightarrow \frac{m}{q} = \frac{dB^2}{2E}$

p 59



利用科西荷夫電压定律

$$\Phi \begin{cases} 10 - 2I_1 - 3I = 0 \\ \Theta \quad 5 - I_2 - 3I = 0 \end{cases}$$

$I = I_1 + I_2$

$$\begin{cases} 10 - 5I_1 - 3I_2 = 0 \quad \Phi \times 3 \\ 5 - 3I_1 - 4I_2 = 0 \quad \Theta \times 5 \end{cases}$$

$\Phi \times 3 - \Theta \times 5$

$$\therefore \begin{cases} 30 - 15I_1 - 9I_2 = 0 \\ 25 - 15I_1 - 20I_2 = 0 \end{cases}$$

$5 + 11I_2 = 0$

$I_2 = \frac{-5}{11}$