

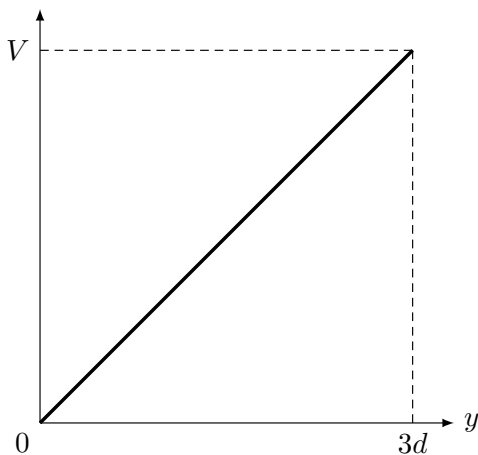
## 1

- 問1 (1)  $\frac{32mg}{h}$  (2)  $\sqrt{2gh}$  (3)  $g \sin \theta$  (4)  $\frac{1}{\sin \theta} \sqrt{\frac{2h}{g}}$  (あ) b (5)  $mg \cos \theta$
- 問2 (6)  $N \sin \theta$  (イ) c (7)  $-mg \sin \theta - m\beta \cos \theta$  (8)  $-\frac{(M+m) \sin \theta}{M+m \sin^2 \theta} g$  (9)  $\frac{M+m \sin^2 \theta}{M+m} h$
- 問3 (10)  $\frac{m(\tan \theta + \mu')}{M+m \tan \theta (\tan \theta + \mu')} g$

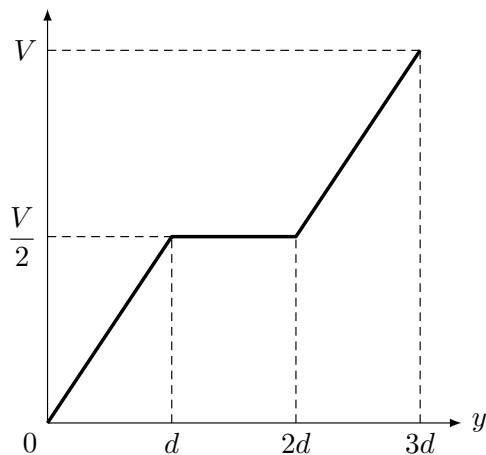
## 2

- 問1 (1)  $\frac{V}{3d}$  (2) 0 (3)  $C \left(1 + \frac{x}{2\ell}\right)$  (4)  $\frac{1}{2} CV^2 \left(1 + \frac{x}{2\ell}\right)$  (5)  $\frac{CV^2}{4\ell}$  (あ) (イ)

(a) V



(b) V



- 問2 (6)  $\frac{\mu_0 I b}{2\pi r} v$  (7)  $\frac{\mu_0 I a b}{2\pi r(r+a)} v$  (8)  $\frac{\mu_0 I a b}{2\pi r(r+a)R} v$  (イ) (イ) (9)  $\left(\frac{\mu_0 I a b}{2\pi r(r+a)}\right)^2 \frac{v}{R}$   
(5) (イ)

## 3

- 問1 (1)  $\frac{c}{\lambda_0} t$  (2)  $\frac{c-u}{c} \lambda_0$  (3)  $\frac{3}{2} RT$  (4)  $\frac{RT}{N_A M}$
- 問2 (5)  $m \frac{v^2}{r} = k \frac{e^2}{r^2}$  (6)  $\frac{n \lambda_e}{2\pi}$  (7)  $\frac{h}{mv}$  (8)  $\frac{4\pi^2 m k^2 e^4}{h^2} \frac{1}{n^2}$  (9)  $\frac{E_\ell - E_n}{h}$
- (10)  $\frac{1}{2} M V_n^2 + E_n + h\nu = \frac{1}{2} M V_\ell^2 + E_\ell$  (11)  $\frac{c - V_\ell}{c}$
- 問3 (12)  $\frac{4R}{c^2 N_A} \frac{T}{M}$

