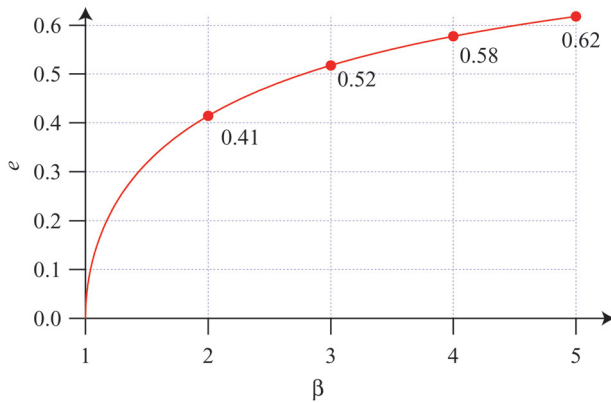


[問 1]

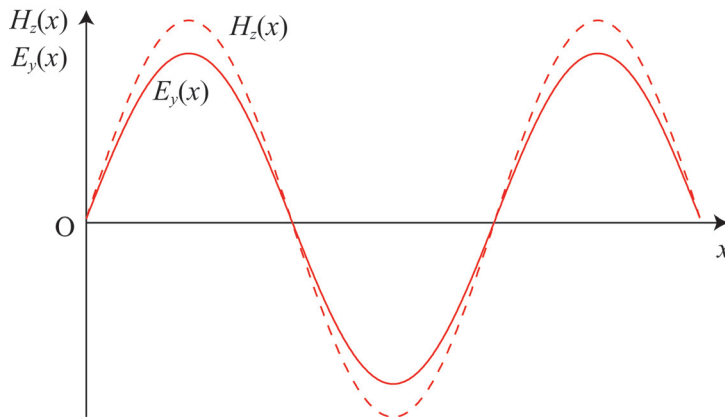
- (1) $\frac{v \sin \theta}{g}$ (2) $h + \frac{v^2 \sin^2 \theta}{2g}$ (3) $\frac{v \cos \theta}{2}$ (4) $-\frac{\alpha + \sin \theta}{2} v$
 (5) $\frac{1}{4} m (v \cos \theta)^2 + \frac{1}{4} m (\alpha + \sin \theta)^2 v^2$ (6) $\frac{\sqrt{2gh(\beta-1)}}{\sin \theta}$ (7) $\frac{2h(\beta-1)}{\tan \theta}$
 (8) $\sqrt{\frac{2\beta h}{g}}$ (9) $\frac{1}{\sqrt{\beta}}$ (10) $\frac{\sqrt{\beta-1}}{\sqrt{\beta+1}}$



(11)

[問 2]

- (1) $\frac{V}{R}$ (2) ① CV ② $\frac{1}{2} CV^2$ (3) $2\pi\sqrt{LC}$ (4) $\sqrt{\frac{C}{L}} V$



(5)

(6) $7.5 \times 10^3 \text{ m}$

[問 3]

- (1) $p_0 \geq \frac{nRT_0}{h_0 S}$ (2) $\frac{p_0 h_0 S}{nR}$ (3) $\frac{3}{2} (p_0 S h_0 - nRT_0)$
 (4) $p_0 + \frac{kh_1}{S}$ (5) $p_0 h_1 S + \frac{1}{2} kh_1^2$ (6) $\frac{5}{2} p_0 S h_1 + \frac{3}{2} kh_0 h_1 + 2kh_1^2$

[問 4]

(1) $r_2 - r_1 = m\lambda$ (2) $b = \frac{m\lambda l}{d}$

(3) $(R_2 + r_2) - (R_1 + r_1) = m'\lambda$ (4) $b = \frac{m'\lambda l}{d} - \frac{la}{L}$

(5) $-\frac{l}{L}v$ (6) $-\frac{nl}{L}v$

[問 5]

(1) $1.7 \times 10^{-27} \text{ kg}$ (2) $9.3 \times 10^2 \text{ MeV}$ (3) 0.63 MeV

(4) ${}^{14}_7\text{N}$ (5) $1.9 \times 10^4 \text{ 年}$ (6) 0.16 MeV