

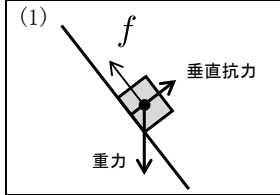
1

※

(計 算 欄)

(解 答 欄)

[1]



(2)

$$f = mg \sin \theta_1$$

(3)

$$ma = mg \sin \theta_1$$

(4)

$$v_A = \sqrt{2gh_0}$$

$$v_B' = \frac{2m}{m+M} v_A$$

(5)

$$h' = \frac{v_B'^2}{2g}$$

[2]

(6)

$$ma' = |mg \sin \theta_1 - \mu' mg \cos \theta_1|$$

(7)

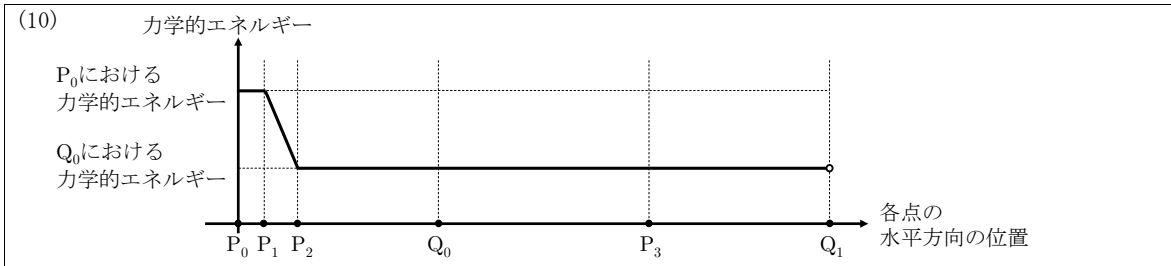
$$W = -\frac{\mu' mg(h_1 - h_2)}{\tan \theta_1}$$

(8)

$$v_2 = \sqrt{2g(h_0 - h_2) + \frac{2W}{m}}$$

(9)

$$d = v_3 \cos \theta_2 \frac{v_3 \sin \theta_2 + \sqrt{v_3^2 \sin^2 \theta_2 + 2gh_3}}{g}$$



※印のある欄は記入してはいけない。

2

(計 算 欄)

(解 答 欄)

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[1]

(1)

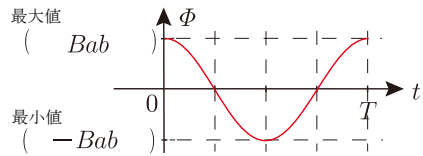
$$\Phi = Bab \quad [\text{Wb}]$$

(2)

$$T = \frac{2\pi}{\omega} \quad [\text{s}]$$

(3)

$$\Phi = Bab \cos \omega t \quad [\text{Wb}]$$



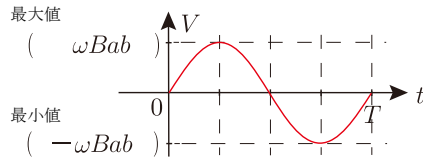
(4)

① レンツ

② ファラデー (の電磁誘導)

(5)

$$V = \omega Bab \sin \omega t \quad [\text{V}]$$



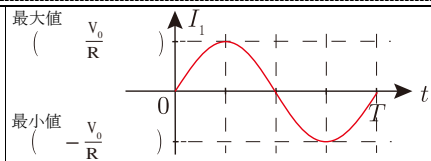
(6)

イからア

[2]

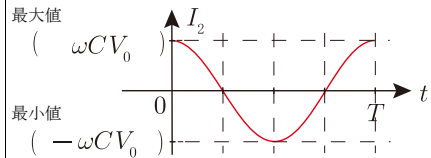
(7)

$$I_1 = \frac{V_0 \sin \omega t}{R} \quad [\text{A}]$$



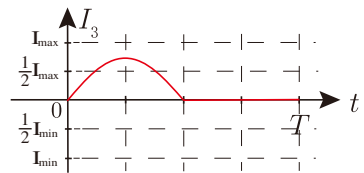
(8)

$$I_2 = \omega CV_0 \cos \omega t \quad [\text{A}]$$



(9)

$$I_3 \text{の最大値} = \frac{V_0}{R+r} \quad [\text{A}]$$



(10)

$V_0$  を  $2V_0$  に変更

もしくは  $R$  を  $\frac{R-r}{2}$  に変更

3

(計 算 欄)

※

(解 答 欄)

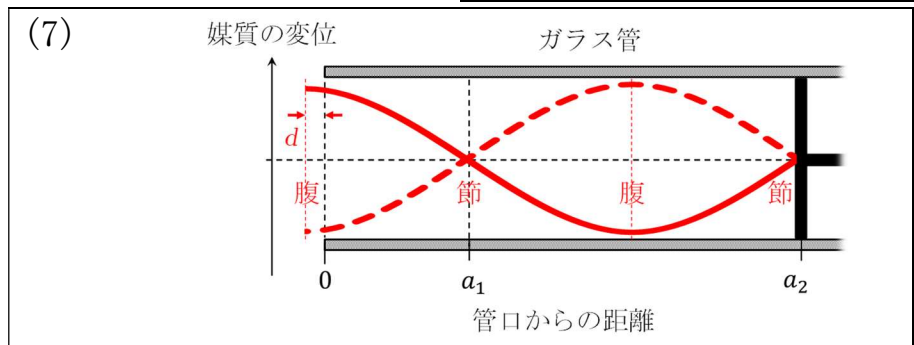
(1)	① $N_A = f_A T_N$	② $N_B = f_B T_N$
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(2)	$ N_A - N_B  = 1$	(3)	$f_N = f_B - f_A$ [Hz]
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(4)	① ウ	② ア	③ イ
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(5)	$\lambda_A = 2(a_2 - a_1)$ [m]
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(6)	$d = (a_2 - 3a_1)/2$ [m]
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注：点線の曲線で示した波は、実線の波の半周期後の波ですので、このグラフも正解です。

(8)	$V = 2(a_2 - a_1)f_A$ [m/s]
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(9)	$\frac{f_A}{f_B} = \frac{b_2 - b_1}{a_2 - a_1}$
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(10)	$V = \frac{2f_N(a_2 - a_1)(b_2 - b_1)}{(a_2 - a_1) - (b_2 - b_1)}$ [m/s]
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