

解答紙

(3枚のうち1枚目)

[1] (45点)

[1]の採点

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問 1	(1)	$\sqrt{2gl(\cos\theta - \cos\theta_0)}$
	(2)	$\frac{3}{5}\sqrt{2gl(1 - \cos\theta_0)}$
	(3)	$\frac{6}{5}mgl(1 - \cos\theta_0)$
	(4)	$\frac{9}{25}l(1 - \cos\theta_0)$
問 2	(1)	$-ev_0$
	(2)	$\pi\sqrt{\frac{l}{g}}$
	(3)	$3(-1)^{n-1}mv_0$
	(4)	$-e^nv_0$
	(5)	$v' = \frac{3}{5}v_0$

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物理基礎・物理

令和7年度入学試験問題

受験番号
8 8 8 8 8

受験番号
8 8 8 8 8

解答紙

(3枚のうち2枚目)

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[2] (40点)

[2]の採点

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問 1	(1)	qE			
	(2)	$B = \frac{E}{v}$			
	(3)	$2qE_P x_1$			
	(4)	$E_P = \frac{mv^2}{4qx_1} \left\{ \left(\frac{B_W}{B_V} \right)^2 - 1 \right\}$			
	(5)	A	(c)	T	(g)
問 2	(1)	$I = \frac{Kv_1 ab}{R}$			
	(2)	$IKab$			
	(3)	$RI^2 t_0$			

解答紙

(3枚のうち3枚目)

〔3〕 (40点)

〔3〕の採点

問 1	(1)	$p_B =$	$\frac{V_A}{V_B} p_A$
	(2)		④
	(3)	$\Delta U =$	$-\frac{3}{2}nR(T_{AB} - T_{CD})$
	(4)	$\frac{V_C}{V_B} =$	$\left(\frac{T_{AB}}{T_{CD}}\right)^{\frac{3}{2}}$
問 2	(ア)	$W_{AB} =$	Q_{in}
	(イ)	$W_{BC} =$	$\frac{3}{2}nR(T_{AB} - T_{CD})$
	(ウ)	$W_{CD} =$	$-Q_{out}$
	(エ)	$W_{DA} =$	$-\frac{3}{2}nR(T_{AB} - T_{CD})$
	(2)	$Q_{in} =$	$nRT_{AB} \log_e \left(\frac{V_B}{V_A}\right)$
	$Q_{out} =$	$nRT_{CD} \log_e \left(\frac{V_B}{V_A}\right)$	
(3)	$e_1 =$	$1 - \frac{T_{CD}}{T_{AB}}$	
(4)		⑤	
問 3	(1)	$\frac{V_C}{V_C} =$	$\frac{T_{AB}}{T_{CD}}$
	(2)		(e)

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