2009年度　北海道大学　前期　物理

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問 1

(1)	$\sqrt{2gh}$
(2)	$\mu' m g d$
(3)	$\mu' d$
(4)	$\sqrt{2g(h-\mu' d)}$
(5)	$m v_1 = m v_1' + 3 m v_2'$
(6)	$-\frac{v_1}{2}$

問 2

(7)	$a < \mu g$
(8)	$a < \frac{g}{\tan\theta}$
(9)	$g \sin\theta + a\cos\theta$
(10)	$\sqrt{2\left(g + \frac{a}{\tan\theta}\right)h}$
(11)	$2(\mu' g - a) d$

2

問 1

(1)	$\frac{V}{d}$
(2)	$\frac{Q}{\varepsilon_0 S}$
(3)	$\frac{\varepsilon_0 S}{d}$
(4)	$\frac{Q^2}{2C}$

問 2

(5)	$\frac{2}{3}Q$
(6)	$\frac{8}{3}Q$
(7)	$\frac{2Q}{3Cd}$
(8)	$\frac{Q^2}{C}$ (または CV^2)
(9)	$\frac{5Q^2}{6C}$ (または $\frac{5}{6}CV^2$)
(10)	$\frac{2Q}{3Cd}$
(11)	$\frac{3}{2}V$

3

問 1

(1)	$\dfrac{nRT}{p}$
(2)	$p\Delta V$
(3)	$\dfrac{3}{2}nR\Delta T$
(4)	$p\Delta V+\dfrac{3}{2}nR\Delta T$
(5)	$\dfrac{5}{2}R$

問 2

(6)	$(m+nM)g$
(7)	$\dfrac{pV_B}{RT}$
(8)	$\dfrac{pV_BM_Ag}{RT}$
(9)	$\dfrac{(m+nM)RT}{pM_A}$
(10)	$\dfrac{5\{m+n(M-M_A)\}RT}{2M_A}$
(11)	3.6×10^{2}