

Câu	Ý	Nội dung	Điểm
I			2,50
	1	$I = \int_0^1 dx \int_{\frac{x^2}{8}}^{x^2} (2x - y) dy + \int_1^2 dx \int_{\frac{x^2}{8}}^{\frac{1}{x}} (2x - y) dy$	0,50
		$I = \int_0^1 \left(2xy - \frac{y^2}{2} \Big _{\frac{x^2}{8}}^{x^2} \right) dx + \int_1^2 \left(2xy - \frac{y^2}{2} \Big _{\frac{x^2}{8}}^{\frac{1}{x}} \right) dx$	0,50
		$I = \frac{6}{5}$	0,25
	2	$G: \begin{cases} x^2 + y^2 \leq z \leq \sqrt{2 - x^2 - y^2} \\ x^2 + y^2 \leq 1 \end{cases}$	0,25
		$x = r \cos \phi, y = r \sin \phi, z = z$ $0 \leq r \leq 1, 0 \leq \phi \leq 2\pi, r^2 \leq z \leq \sqrt{2 - r^2}$	0,25
		$V = \int_0^{2\pi} d\phi \int_0^1 r dr \int_{r^2}^{\sqrt{2 - r^2}} dz$ $V = \frac{8\sqrt{2} - 7}{6} f$	0,5
			0,25
II			2,50
	1	$L: x = 1 + \cos t, y = \sin t, 0 \leq t \leq 2\pi$ $x^2 + y^2 = 1$	0,25
		$J = \int_0^{2\pi} (2 + 2 \cos t) dt$ $= 4\pi$	0,25
	2	$K = \int_A^B d(ye^x + x^2 + y^3)$	0,50
		$= ye^x + x^2 + y^3 \Big _A^B$ $= 2e + 7$	0,50
			0,25
III			1,50
	1	$\overrightarrow{\text{rot}} \vec{F} = (3x - 3x, 3y - 3y, 3z - 3z) = \vec{0} \Rightarrow \vec{F} \text{ là trường thế}$	0,50

	2	$W = \iiint_{G: x^2 + (y+1)^2 + z^2 \leq 1} 2dx dy dz$ $= 2V_G = \frac{8f}{3}$	0,50 0,50
IV			1,00
	1	$H = \iint_{D: x^2 + y^2 \leq 1} (x^2 + y^2) \sqrt{1 - x^2 - y^2} \sqrt{1 + \frac{x^2 + y^2}{1 - x^2 - y^2}} dx dy$ $H = \iint_{\Delta: \begin{cases} 0 \leq r \leq 1 \\ 0 \leq \phi \leq 2\pi \end{cases}} r^3 dr d\phi = \frac{f}{2}$	0,50 0,50
V			2,50
	1	<p>t $y = ux, x \neq 0$</p> $\frac{dx}{x} + \frac{u-3}{u^2+4} du = 0$ $\ln x + \frac{1}{2} \ln(u^2+4) - \frac{3}{2} \arctan \frac{u}{2} = C$ $\ln x + \frac{1}{2} \ln\left(\frac{y^2}{x^2} + 4\right) - \frac{3}{2} \arctan \frac{y}{2x} = C$	0,50 0,50
	2	<p>Ph $\ddot{y} - y' = x$ là nghiệm riêng c a ph $\ddot{y} - y' = x$</p> <p>Nghi m t ng quát $y = C_1 + C_2 e^x - \frac{1}{2} x^2 - x + \cos x - \sin x$</p>	0,25 0,50 0,50 0,25