ĐÁP ÁN

Câu	Nội dung	Điểm
1-a	$x = -2$, $V = \int_{-2}^{0} -2\pi x(x^3 + 8)dx$, $= \frac{96\pi}{5}$	$0.25 + 0.5 + 0.25$
1-b	$x = 0, x = 7$, $S = \int_{0}^{7} x(7-x)dx$, $= \frac{343}{6}$	$0.25 + 0.5 + 0.25$
2-a	$u = e^{-x}$, $ye^{-x} = \int x dx$, $ye^{-x} = \frac{x^2}{2} + C$	$0.25 \times 2 + 0.5$
2-b	$A = \left(\frac{x^2}{2} + 9x\right)\ln x - \frac{x^2}{4} - 9x + C$	0.5
	$B = \lim_{b \to \infty}\left(\left(\frac{b^2}{2} + 9b\right)\ln b - ...\right) = \infty$	0.5
3-a	$k^2 + 5k + 6 = (k+3)(k+2)$, $a_k = \frac{1}{\sqrt[3]{k+3}} - \frac{1}{\sqrt[3]{k+2}}$	0.5
	, $S_n = \frac{1}{\sqrt[3]{n+3}} - \frac{1}{\sqrt[3]{2}} \to -\frac{1}{\sqrt[3]{2}}$	0.5
3-b	$R = 5$ tại $x = 5$ phân kỳ vì $a_k \to 1$	0.5
	tại $x = 5$ phân kỳ vì a_k không hội tụ, MHT $(-5; 5)$	0.5
3-c	$\lim a_k/(k^{3\alpha - 2.5})^{-1} = 1$, chuỗi cùng tích chất...	0.5
	$3\alpha - 2.5 > 1 \Leftrightarrow \alpha > \frac{7}{6}$	0.5
4	$\mathbf{c} = \langle 2; 0; 3\rangle$, $\mathbf{d} = \langle -3; 1; 2\rangle$, $\|\mathbf{d}\| = \sqrt{14}$	$0.25 + 0.5 + 0.25$
5-a	$\theta = \frac{\pi}{4}$, $S = \frac{1}{2}\left[\int_{0}^{\pi/4}\left(\frac{(2+\sqrt{2})\theta}{\pi}\right)^2 d\theta + \int_{\pi/4}^{\pi}\left(\frac{1+\cos\theta}{2}\right)^2 d\theta\right]$	0.5
	$= \frac{(2+\sqrt{2})^2\pi}{384} + \frac{9\pi - 8\sqrt{2} - 2}{64}$	0.5
5-b	$3 + 3\sin x + \sin^2 x = \frac{u^2+3}{4}$, $6 + 7\sin x + 2\sin^2 x = \frac{u^2+u}{2}$	0.5
	$J = \frac{1}{8}\int\left(u + \frac{3}{u}\right)du = \frac{(3+2\sin x)^2}{16} + \frac{3}{8}\ln(3 + 2\sin x) + C$	0.5