

MATH 161 EXAM 3, Spring 2009

Show your work. No work no credit!		Name:	Score	
1.	Find the antiderivative of the following functions: a) $f(x) = \sqrt{x}(1-x)$.	b) $f(x) = \cos 5x$	1	
			2	
			3	
			4	
			5	
			6	
			7	
			8	
Ans:_____.		Ans:_____.		
2.	The acceleration of a particle is given by $a(t) = t + 1$, with $v(0) = 1$ and $s(0) = 2$. a) Find the velocity $v(t)$.	b) Find the position $s(t)$.	9	
			10	
			Tot	
Ans:_____.		Ans:_____.		
In problems 3-7, find the given integrals. For indefinite integrals use substitution or integrate directly and differentiate to verify the answers.				
3.	a) $\int_0^1 te^{t^2} dt$	b) $\int 1/(5x) dx$		
			Ans:_____.	
4.	a) $\int x^2 \sinh(x^3 - 1) dx$	b) $\int 5 \sin 3t \cos 3t dt$		
			Ans:_____.	
5.	a) $\int \frac{\sec^2(1/y)}{5y^2} dy$	b) $\int \frac{4z}{1+z^4} dz$		
			Ans:_____.	
Extra Space				

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6.	a) $\int_3^5 x(x^2 - 9)^{1/2} dx$	b) $\int \frac{\sin x}{1 + \cos x} dx$	
	Ans: _____.	Ans: _____.	
7.	a) $\int_1^e \frac{\ln x}{4x} dx$	b) $\int \frac{x}{x + 9} dx$	
	Ans: _____.	Ans: _____.	
8.	Use the Fundamental Theorem of Calculus to find: a) $\frac{d}{dx} \int_{\pi}^{x^4} \frac{\sin t}{t} dt$	b) $\frac{d}{dx} \int_{4x}^1 \sqrt{t^4 - 9} dt$	
	Ans: _____.	Ans: _____.	
9.	A rectangular plot of land adjacent to river is enclosed on the other three sides by a fence. If the area is required to be 3200 m ² , find the dimensions that will minimize the amount of fence material.		
			Ans: _____.
10.	From Quiz 6: Use Riemann sums to find the exact value of $\int_{-1}^2 2x^3 dx$.		
			Ans: _____.
	Extra Space		