

MATH 162 FINAL EXAM, FALL 2006

Simplify answers. No work, no credit		Name:	Score	
1.	a) Find: $\int x \cos 3x \, dx$ .	b) Find: $\int t \sec^2 t \, dt$ .	1	11
			2	12
			3	13
			4	14
			5	15
			6	16
			7	17
			8	18
Ans: _____.		Ans: _____.		
2.	a) Find: $\int \cos^2 3x \, dx$ .	b) Find: $\int \tan^3 z \, dz$ .	9	19
			10	20
			Tot	
			Ans: _____.	
3.	a) Find: $\int_0^\infty x^2 e^{-x} \, dx$ .	b) Find: $\int_1^\infty \frac{1}{x^3} \, dx$ .	Ans: _____.	
			Ans: _____.	
4.	Find: $\int \frac{x^2}{\sqrt{4-x^2}} \, dx$ .	Ans: _____.		
		Ans: _____.		
5.	Find: $\int \frac{4}{x^2+2x} \, dx$ .	Ans: _____.		
		Ans: _____.		
Extra Space				

Fin162F06p2.		Name:	
6.	Find the length of the curve: $y = \frac{x^2}{2} - \frac{\ln x}{4}$ , $1 \leq x \leq 2$ .		Ans:_____.
7.	A plate of density $\sigma = xy$ has the shape of a semicircle $y = \sqrt{9 - x^2}$ . Set up the integrals for: a) The $y$ coordinate of the centroid.	b) The $y$ coordinate of the center of mass.	Ans:_____.
8.	a) Solve $xy' - 2y = x^4e^{x^2}$ .	b) Solve $xy' - y \ln x = 0$ .	Ans:_____.
9.	a) Solve $y'' + 36y = 0$ , $y(0) = 0$ , $y'(0) = 2$	b) Solve $y'' - 2y' + 4y = 0$ .	Ans:_____.
10.	A culture starting with 60 cells of E. Coli bacteria found at Taco Bell doubles every 20 minutes. Find: a) The growth constant $k$ in the model $y' = ky$ .	b) How long does it takes to get 40,000 cells.	Ans:_____.
Extra Space			



Fin162F06p4.		Name:	
16.	a) Test for convergence: $\sum_{n=1}^{\infty} \frac{1}{n^2 + 1}$ .	b) Test for convergence: $\sum_{n=1}^{\infty} \frac{1}{(\ln 2)^n}$ .	
	C D by: _____ test.	C D by: _____ test.	
17.	Test for absolute or conditional convergence: $\sum_{n=1}^{\infty} \frac{(-1)^n (n!)^2}{(2n)!}$ .		
	CC CA D by: _____ test .		
18.	Test for absolute or conditional convergence: $\sum_{n=1}^{\infty} \frac{(-1)^n}{n \ln n}$ .		
	CC CA D by: _____ test .		
19.	Find the radius of convergence and the interval of convergence: $f(x) = \sum_{n=1}^{\infty} \frac{(x-4)^n}{n3^n}$ .		
	a) Radius of Convergence	b) Interval of Convergence.	
	Ans: _____.	Ans: _____.	
20.	a) Find the Maclaurin series: $f(x) = \frac{1}{1+4x^2}$ .	b) Evaluate as an infinite series $\int \cos(\sqrt{x}) dx$ .	
	Ans: _____.	Ans: _____.	
	Comments about this test.		