

MATH 162 EXAM 3, Spring 2007

		Name:	Score	
1.	Eliminate the parameter and find the Cartesian equation: a) $x = 2e^t, y = e^{-t}$.	$x = \sec t, y = \tan t$.	1	
			2	
			3	
			4	
			5	
			6	
			7	
			8	
Ans:_____.		Ans:_____.		
2.	Find a parametric equation for each of the curves below: a) $(x - 2)^2 + y^2 = 1$.	b) $x^2 + 4y^2 = 1$.	9	
			10	
			Tot	
Ans:_____.		Ans:_____.		
3.	Given the parametric equations: $x = \sin \pi t, y = \cos \pi t$, find: a) dy/dx	b) d^2y/dx^2 .		
			Ans:_____.	
4.	Let $x = a \cos t$, and $y = b \sin t$. Find the area bounded by the curve for $0 \leq t \leq 2\pi$. a) Set up the integral.	b) Compute the integral		
			Ans:_____.	
5.	Identify the names of the graphs described by the following equations:			
	a) $x = t^2 - 1, y = t^4$.	Ans:_____.	b) $x = 5 \cos 2t, y = 3 \sin 2t$.	Ans:_____.
	c) $x^2 + 9y^2 - 4x = 1$.	Ans:_____.	d) $r = \cos^2(\theta/2)$.	Ans:_____.
	e) $r = 2 \cos 2\theta$.	Ans:_____.	f) $r = 9/(1 + \sin \theta)$.	Ans:_____.
Extra Space				

		Name:
6.	Find the length of one arch of the cycloid $x = t - \sin t$, $y = 1 - \cos t$, $0 \leq t \leq 2\pi$.	Ans:_____.
7.	a) Find a Cartesian equation for $r \cos \theta = 4$.	b) Find a polar equation for $x^2 = 4y$.
	Ans:_____.	Ans:_____.
8.	We wish to compute the area that lies inside $r = 4 \sin \theta$ and outside $r = 2$.	
	a) Find the points of intersection.	b) Set up the integral (do not evaluate!)
	Ans:_____.	Ans:_____.
9.	Find an equation of the conic that satisfies the given conditions	
	a) Parabola, vertex(0, 0), focus(0, 2).	b) Ellipse, foci(± 2 , 0), vertices(± 5 , 0).
	Ans:_____.	Ans:_____.
10.	Given the conic $r = 10/(3 - 2 \cos \theta)$:	
	a) Find the eccentricity and identify the conic.	b) Find the directrix and foci. Sketch the conic.
	Eccentricity:_____. Conic: _____.	Directrix: _____. Foci:_____.
	Extra Space	