

MATH 162 Sample Exam 3

		Name:	Score	
1.	Eliminate the parameter and find the Cartesian equation: a) $x = \sin t, y = 4 - \cos t.$	$x = t^2, y = t^3.$	1	
			2	
			3	
			4	
			5	
			6	
Ans:_____.		Ans:_____.		
2.	Let $x = t^3 - 6t^2$, and $y = t^2 - 4t$. Find: a) dy/dx .	b) The points where the tangent is horizontal.	7	
			8	
			9	
			10	
			Tot	
Ans:_____.		Ans:_____.		
3.	Find the exact arc length of the curve $x = 1 + 3t^2, y = 4 + 2t^3; 0 \leq t \leq 1.$ a) Set up the integral.	b) Compute the integral.		
Ans:_____.		Ans:_____.		
4.	Change from polar to Cartesian coordinates: a) The point $P(\sqrt{2}, \pi/4).$	b) The equation $r = 4 \sec \theta.$		
Ans:_____.		Ans:_____.		
5.	Find the arc length of the curve $r = 4(1 - \cos \theta).$ a) Set up the integral	b) Compute the integral		
Ans:_____.		Ans:_____.		
Extra Space				

		Name:
6.	Find the center, vertices and foci of the conic: $9x^2 + 4y^2 - 18x = 27$.	
	Vertices_____Center_____.	Foci _____.
7.	Given the conic $r = 8/(4 + \sin \theta)$:	
	a) Find the eccentricity and the directrix.	b) Find the coordinates of vertices and foci.
	Eccentricity:_____Directrix_____.	Vertices:_____Foci:_____.
8.	Determine whether the sequence converges or diverges. If it converges, find the limit.	
	$a_n = n^2e^{-n}$.	b) $a_n = \ln(n + 1) - \ln n$.
	Ans:_____.	Ans:_____.
9.	Find the sum of the following series:	
	a) $s = 4 - 3 + \frac{9}{4} - \frac{27}{16} \dots$	$\sum_{n=1}^{\infty} 3 \frac{(-2)^{n+1}}{5^n}$.
		Ans:_____.
10.	Use the integral test to determine whether the series is convergent or divergent.	
	$\sum_{n=1}^{\infty} ne^{-n^2}$.	
		Ans:_____.
	Extra Space	