Math 262 - Final Exam
Los Angeles City College - Fall 2006

Dr. Kian Kaviani Name_____

1. Sketch the following polar function on a polar graph paper accurately (15 pts.)
2. Sketch the curve

$$x = e^t - 1 \ \& \ y = 3 + e^{2t}$$

by eliminating t. Also label the direction of increasing t.

3. Find $\frac{dy}{dx}$ & $\frac{d^2y}{dx^2}$ for the following parametric equations: $x = 3t - 6t^2$ & $y = \ln(t)$ (10 pts.)

4. Find the angle(s) that correspond to a vertical tangent line to the following polar function: $r = 3 - 4\sin\theta$ (15 pts.)

5. Find the area of the region that is bounded between $r = 4$ & $r = 2 + 2\cos\theta$ (15 pts.)

6. Identify the following conic in a rotated $x' - y'$ system:
$x^2 + 2\sqrt{3}\,xy + 3y^2 + 2\sqrt{3}\,x - 2y = 0$ (15 pts.)

7. Identify and sketch the following conic: (15 pts.)

$$r = \frac{4}{2 - \sin\theta}$$

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