Exam 1

Calculus IIIA, Dave Bayer, February 15, 2001

Name: _____

ID: _____ **School:** _____

[**1**] (6 pts)	[**2**] (6 pts)	[**3**] (6 pts)	[**4**] (6 pts)	[**5**] (6 pts)	**TOTAL**

Please work only one problem per page, starting with the pages provided, and number all continuations clearly. Only work which can be found in this way will be graded.

Please do not use calculators or decimal notation.

[**1**] Find the area under the parametrized curve

$$x = e^t, \quad y = e^{2t}, \quad 0 \leq t \leq \ln(2).$$

Problem: _____

[2] Find the area of one petal of the polar curve

$$r = \cos(2\theta).$$

Problem: _____

Continued on page: _____

[3] Find the surface area generating by rotating around the x-axis the parametrized curve

$$x = \cos(t), \quad y = \sin(t), \quad 0 \leq t \leq \pi.$$

Problem: _____

Continued on page: _____

[4] Find the arc length of the parametrized curve

$$x = t\cos(t), \quad y = t\sin(t), \quad 0 \leq t \leq 2\pi.$$

Simplify the integral as far as possible, but do not solve it. Instead, guess its value.

Problem: _____

 Continued on page: _____

[5] Find the arc length of the polar curve

$$r = \theta, \quad 0 \leq \theta \leq 2\pi.$$

Simplify the integral as far as possible, but do not solve it. Instead, guess its value.

Problem: _____

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