

DEPARTMENT OF MATHEMATICS

Student's Name RUBRIC Course# \_\_\_\_\_ Prob.# 1 Date \_\_\_\_\_  
 Section Instructor \_\_\_\_\_ Sec.# \_\_\_\_\_

GRADING


25 pts

HONOR PLEDGE: I pledge on my honor that I have not given or received any unauthorized assistance on this examination or assignment.

Please write the exact wording of the pledge, followed by your signature, in the space below:

\_\_\_\_\_

Signature \_\_\_\_\_

1.  $(x(t), y(t)) = (e^t \sin(t), e^t \cos(t)), t \in [0, \pi]$ .

$$L = \int_0^\pi \sqrt{\left(\frac{dx}{dt}\right)^2 + \left(\frac{dy}{dt}\right)^2} dt$$

$$= \int_0^\pi \sqrt{(e^t \cos(t) + e^t \sin(t))^2 + (-e^t \sin(t) + e^t \cos(t))^2} dt$$

$$= \int_0^\pi \sqrt{2} e^{2t} dt$$

$$= \sqrt{2} \int_0^\pi e^t dt = \sqrt{2} \left[ e^t \right]_{t=0}^{t=\pi} = \sqrt{2} (e^\pi - 1)$$

Pointage

· 7 pts

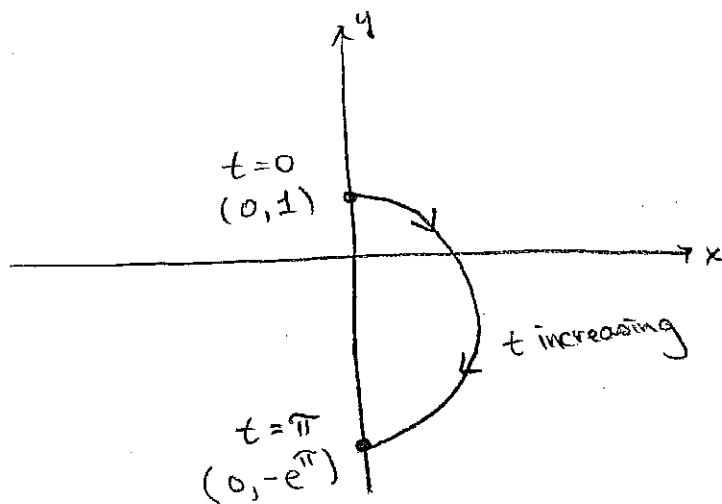
· 4 pts

· 2 pts

· 2 pts

15 pts

Sketch:



10 pts:

6 for general shape & direction,

2 for each endpt.