Mathematics 110 – Calculus of one variable

Trent University 2003-2004

Assignment #4

Due: 25 February, 2004

Consider the curve given by the following parametric equations.

$$x = e^t \cos(t)$$
$$y = e^t \sin(t)$$
$$\text{where} \quad -\infty < t \leq 0$$

(See §10.1 and 10.2 in the text for information on how to handle curves in parametric form.)

1. Sketch this curve. *[2]*

2. Find the length of this curve. *[4]*

3. Suppose the curve is rotated about the x-axis. What is the area of the resulting surface? *[4]*

On Problems

Our choicest plans
have fallen through,
our airiest castles
tumbled over,
because of lines
we neatly drew
and later neatly
stumbled over.

Piet Hein