

Worksheet 5

/ 15 points

Name:

Section: 2 4 (circle one)

1. Find the length of the curve

$$r(t) = e^t \cos(t) \ i + e^t \sin(t) \ j + e^t \ k$$

from

$$t = -\ln(4) \text{ to } t = 0.$$

2. For the curve

$$r(t) = e^t \cos(t) \ i + e^t \sin(t) \ j + 2 \ k$$

find the unit normal, T , the principle unit normal, N , the curvature, κ , and... find a vector valued function, B , such that $B(t)$ is orthogonal to both $T(t)$ and $N(t)$ for all values of t .